

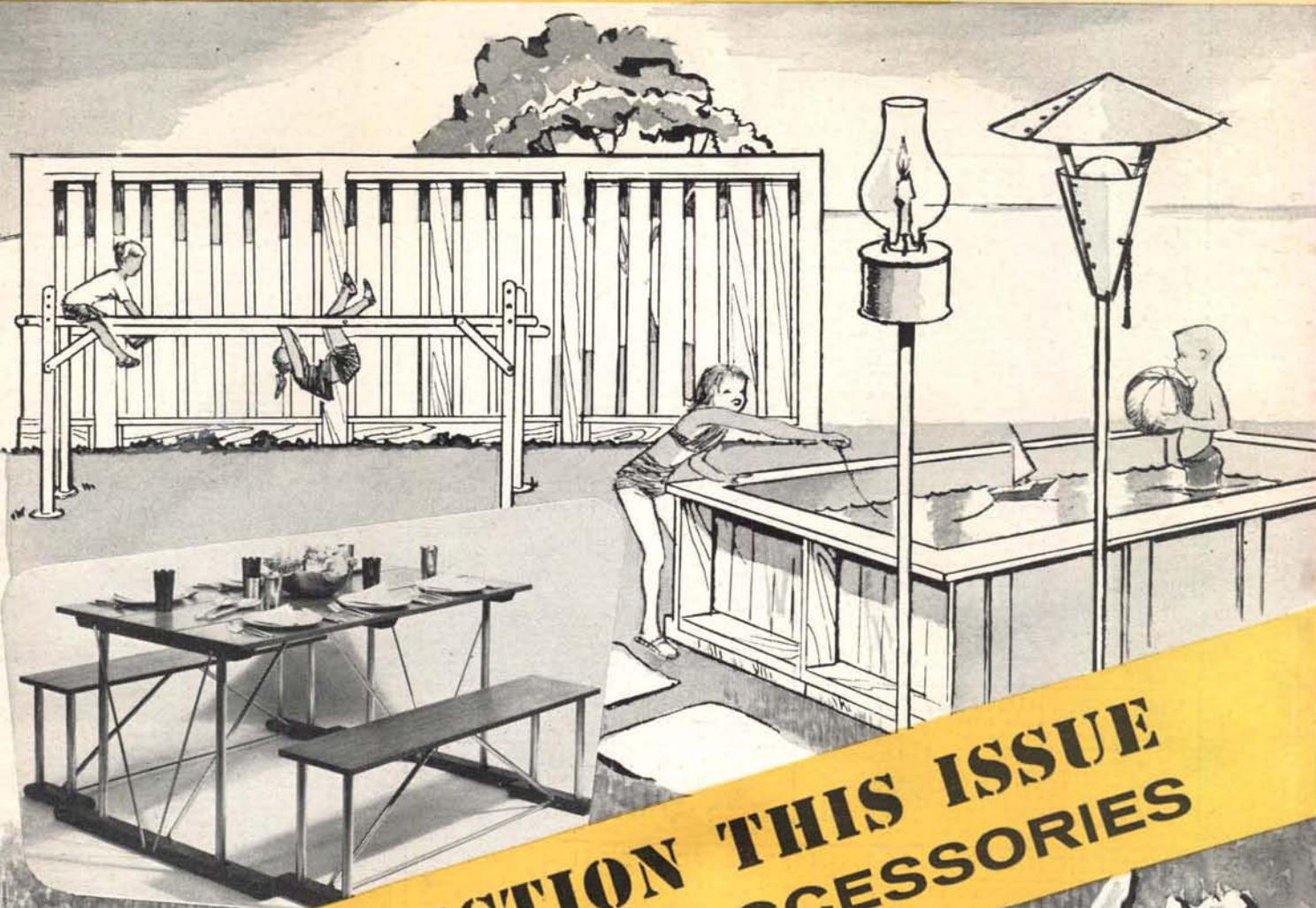
Workbench

July-August

35c

CDC

1959



SPECIAL SECTION THIS ISSUE
OUTDOOR LIVING ACCESSORIES

ALSO HOW TO:
Help Beat The Heat and Humidity
Make Minor Repairs to Major Appliances

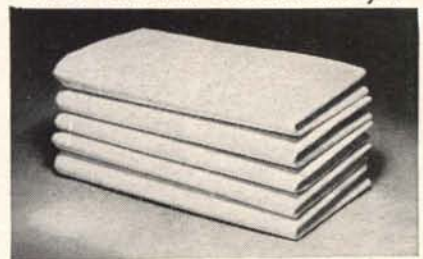
SENSATIONAL CLOSEOUT SALE! SAVE UP TO 75%

Selling Out Everything!

Never, in all the years we've been in business have we featured bigger bargains, but frankly, WE'RE STUCK! We have TOO much merchandise in our Warehouse. We NEED more room! We also need MORE money for incoming merchandise! So we're slashing prices to the bone on EVERYTHING! Nothing is spared. You can make tremendous savings up to 75% or more—on factory-fresh, brand-new merchandise. Sale at these low prices ends when we're sold out, so don't delay. Our supplies are limited. Order NOW and save BIG money while these sensational low prices are still in effect. Look ahead and SAVE. You take no chances. We GUARANTEE to please you, as we have more than a million other satisfied customers. Your money cheerfully refunded unless you're more than pleased.

50 LARGE NEW TOWELS 2¢ ea.

NEW Unwoven Cotton and Rayon



Unretouched Photo; Our 50 Towels for \$1.00 Offer

Astonishing but EVERY WORD GUARANTEED TRUE! World's greatest towel offer, bar none—50, yes 50, marvelous, large, brand new (not seconds) in beautiful colors and white... only \$1.00 (plus 25¢ for pstg. & hdlg.) or \$1.25 in all! We sell at staggering low price because we buy huge quantities direct from Mills—more than 29,400,000 Towels since 1953! If you're not thrilled and delighted, return Towels—keep 10 Free for your trouble—and we'll cheerfully refund purchase price. Order NOW before offer is cancelled. No C.O.D.'s.

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Twice as much as others give you. Others charge \$1.00 for ONE 9 x 12 ft. size transparent, one-piece, no seam Plastic Cloth. Our price for TWO is only \$1.00!

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VIBRATOR PILLOW GIVEN AWAY!

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World's Finest, Smallest ADDING MACHINE—Adds Up to 1 Billion



High quality steel ONLY mechanism, not tin or plastic like others. \$149

Adds, subtracts, multiplies, divides—up to 1,000,000,000—ONE BILLION! Never makes a mistake. Save money, avoid errors, wherever, whenever you shop. Works with lightning speed with same precision as machines costing hundreds of dollars! Millions of adding machines sold at much higher prices but we GUARANTEE ours is finest and lowest-costing in world—or your money back! Only \$149 plus 46¢ for postage and handling or \$1.95 in all! FREE, marvelous fitted Vinyl carrying case with order.

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SENSATIONAL! World's greatest thread value — bar none! 100 spools of wonderful mercerized thread. In every color imaginable—16 shades of blue alone! Now you can match ANY color under the sun! Perfect for mending, darning, sewing, patching. 100 spools for 88¢ plus 12¢ for postage and handling or \$1.00 in all!

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8¢ ea.

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World's most amazing and lowest price, unconditionally guaranteed appliance that automatically



Roasts, Fries, Stews, Cooks, Warms, Casseroles, Blanches, Steams, etc. Just set dial—that's A.I.L. Westinghouse Thermostat takes care of everything! Big 6-quart size. Comparable to those advertised at \$39.95—our price \$6.75 plus \$1.00 postage or \$7.75 in all! FREE FIREPROOF ovenproof cover. Also FREE — big cook book.

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In enchanting patterns and designs. Vals, edges, insertions, etc. In beautiful colors and full widths. For women's, girls' and babies' dresses, pillowslips, decorative edgings on many articles, etc. Pieces up to 10 yds. in length. NO small pieces, 50 yds. only 88¢ plus 12¢ or \$1.00 in all! FREE with order—100 Assorted Buttons.



500 PRINTED LABELS 50¢

Printed with any name and address. Plastic jewel-type box FREE with each set ordered! Special: 3 sets \$1.00. Same or different name on each set.

EXCEPTIONAL SAVINGS ON SELECTED ITEMS!

Plastic Toaster Cover. Was 50¢. Now 19¢ ea.
Plastic Mixer Cover. Was 50¢. Now 29¢ ea.
Sugar Scoops. Were 15¢. Now 5¢ ea.
Plastic Pot Scraper. Was 10¢. Now 2 for 10¢
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Bobby Pins. 35 on each card. 10¢ value. Our price 6¢
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Mother's Tablecloth, 54 x 54-in. Was \$1.98. Now 79¢
Measuring Spoons, set of 4. Were 19¢. Now 8¢
5-piece Family Comb Package. Assorted sizes. 3 for 25¢

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We'll give an extra free gift worth \$1.00 with each order for \$3.00 or more! MINIMUM ORDER accepted \$1.00. PLEASE include 25¢ for packing & hdlg. for EACH order regardless of size.

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Complete Power Tool Accessory Set 100 PIECES

Designed for use in all 1/4" capacity Electric Drills and Motor Chuck.

A complete power tool accessory set that can handle almost any job of grinding, sawing, cutting-off, polishing, buffing, reaming, sanding, drilling, cleaning, etching, etc. KIT CONTAINS: Wire Wheel, Mounted Grinding Wheels, Rotary File, Abrasive Cartridge Rolls, Circular Saw Blade, Felt Bob and Wheels, Honing Stones, Jewelers Rouze, Buffing Wheels, Midget Steel Cutters, Bristle Brushes, Abrasive Sheets and sufficient Arbors to accommodate all the unmounted items.

\$4.98
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35c pp. & hdg.

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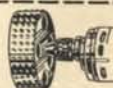
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New EYELET PLIER does a neat-looking professional job every time... saves you big money on new articles and repairs. Works on fabric, leather, plastic, cardboard, paper, oilcloth. Great for:

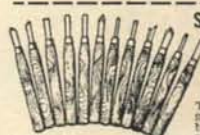
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Rasps, Shapes, Planes and Mixes



No home, farm, garage or shop can afford not to have this ingenious Rotary Rasp. Snap into the chuck of your 1/4" electric drill and it's ready for use. Perfect for fast shaping of furniture: Rasping of wood, plastic, fibre, etc.; Planing of floors, boards and mixing of oil paints or other heavy-bodied... **\$1.98** West Germany... plus 25c pp. & hdg.



Surgical Steel—Hand Ground Set of 12 CARVING KNIVES

\$2.00

The sharpest, keenest ground, surgical steel blades—we have ever seen—sharp enough to split a human hair in two! 12 different shapes and edges can do every job of wood carving, model making, linoleum cutting, sculpting and whitening. Each surgical blade has a 4 1/2" long hardwood handle for easy gripping... ferrule to insure long, continued rugged use. Each surgical steel blade precision hand ground to easily and quickly notch and cut any shape you wish. A sensational all-purpose set, well worth \$5.00.

Send check or money order.

If C.O.D. fees extra. Money-Back Guarantee.

SCOTT-MITCHELL HOUSE, Inc.

Dept. W-7, 415 S. Broadway, Yonkers, N.Y.



keeping up with craft and home products

In communicating with companies whose products are described in this department, please mention **WORKBENCH**.

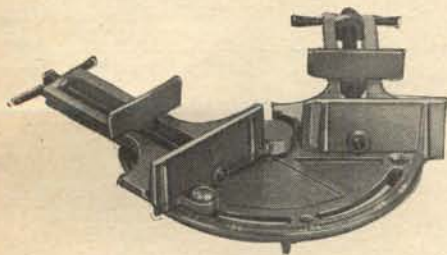
Pressurized Knot Sealer



SEALING KNOTHOLES—before now one of the worst jobs in painting—becomes a fast, quick job with B-90 Knot Sealer. This completely new product is the first pressurized knot-hole sealer to be marketed. Professional painters will applaud B-90 Knot Sealer as a resin base sealer that can't stain a coat of paint as other old-fashioned sealers quite frequently do. They also will discover the speed with which B-90 Knot Sealer is applied. A simple push on the top button of the can and the knothole is sealed for life.

Housewives and do-it-yourself hobbyists will appreciate the neatness of performance from the B-90 Knot Sealer. There aren't any sloppy cans to monkey with. Just a self-contained pressurized can. Priced at \$1.95 per can at local paint suppliers. Manufacturer is Gelvatex Paint, 901 East Vermont, Anaheim, California.

Adjustable Corner and Splicing Clamp



A CLAMP that is so practical and useful you'll never again have to waste time holding two pieces together is being offered by the Drumcliff Company, Dept. 370, Towson 4, Maryland.

An adjustable corner and splicing clamp which is able to adjust to any angle: octagons, hexagons, diamonds or any in-between angle, this clamp can hold, at any angle, picture frames, screens, shadow boxes, storm windows, trim, miter or butt joints for nailing, stapling, gluing or splicing. The clamp also has built-in clearance for a saw blade which permits correction of inaccurate miter cuts. The complete clamp consists of two screw clamps attached to a metal base. One screw clamp remains stationary while the other swings a full 180 degrees. This clamp does not cover corners. It fully exposes the top and side of two pieces so that nails or screws can be driven into joint. Each screw clamp opens to 3" to hold different widths and thicknesses at same time. Precisor cast, made of polished aluminum alloy, lightweight and strong, there are two countersunk holes provided for fastening clamp to workbench if desired. Price of complete clamp \$1.75 each. Price of two for joining two corners at once \$3.35. If still faster joining is desired, four clamps can be purchased for \$6.70. Clamps are available direct from the Drumcliff Company with a money back guarantee.

Tools For Special Paint Jobs



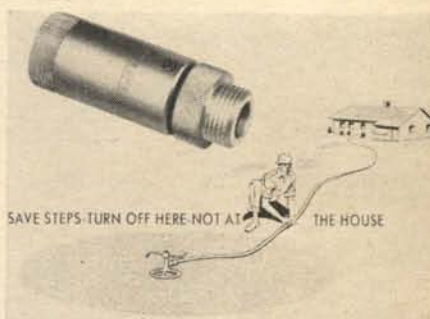
TWO NEW time and temper-saving painting tools have just appeared on the market.

The Immie Window Sash Painter that paints a window in seconds—without paint smear on the glass—is said to eliminate the tricky, tiring and time-consuming chore of cutting in windows. A companion item, the Immie Paint Edger, is designed for straight-edging walls, ceilings, trim, floors, baseboards, etc.

Both operate on a revolutionary new principle. A soft mohair-coated plastic pad compresses behind a metal guard edge when a slight downward pressure is applied. Paint is spread evenly over smooth or curved surfaces without streaks, smears dripping or orange-peel effect. Paint, varnish, shellac or stain may be used with either item.

The Immie Window Sash Painter retails for 50 cents, the Paint Edger for 70 cents, prices on both items being 10 cents higher west of the Mississippi. For additional information write to the Immie Corporation, 2105 N. Goodman St., Rochester 21, New York.

Valve Controls Hose Away From Hydrant



THE JACKSON Specialty Company of Jackson, Michigan, announces its new Step-Saver hose valve to eliminate unnecessary steps while using a garden hose. Designed primarily for use with lawn sprinklers, the valve has a number of other uses.

When used with a sprinkler, the valve is placed in the hose line, just out of sprinkler range. Then whenever it is desirable to move the sprinkler, the valve is closed, the sprinkler shifted to the new position and the valve reopened with a quick half twist without ever returning to the sill cock at the house. If the new location is not correct, the process can be repeated in seconds.

All aluminum, the valve is closed by a simple half turn of the body; reopens quickly with a clockwise half-turn. The Step-Save valve is round so that it will not catch or tear turf or shrubbery while being dragged across the lawn. Anodizing gives the valve a bright red color, so that it is easy to find on grass or soil. It has a male $\frac{5}{8}$ " hose thread

at one end and a female $\frac{5}{8}$ " hose thread at the other end, for easy installation in a garden hose line. Knurling at each end makes it easy to open and close the valve, even though hands are muddy and slippery.

The valve may also be used at the end of the hose line for easy control of water flow during transplanting operations, while washing the car and for use as a soaker in localized areas. The Step-Saver valve may be purchased in some stores or ordered directly from the manufacturer. Priced at \$3.35 each, the valve carries a money back guarantee and may be returned within 30 days, for any reason. To order or for more complete details, write the Jackson Specialty Company, 879 Woodbine, Jackson, Michigan.

Mechanized Garden Tool



MOST HOMEOWNERS have been using power lawn mowers for years but have had to do all the rest of their yard maintenance laboriously by hand. Now a new gasoline-powered garden tool is available that mechanizes much more of the work around the yard and saves hours of hard labor.

Called the David Bradley Roto-Stick, this new lightweight garden tool uses a powerful gas engine for operating either roto-tiller, lawn edger or lawn trimmer attachments.

Held in about the position of a hoe, the Roto-Stick is simple and easy to use. Easily maneuverable, it's ideal for close-in tilling, edging and trimming.

Attachments go on and off in seconds without tools and the whole unit is so compact that it is easily stored in the most crowded garage, either hanging from the wall or on a shelf.

Excellent for working around flowers or shrubbery plantings, the Roto-Stick's tiller attachment is powerful enough to work small vegetable gardens effectively. It breaks up hard-packed soil and roots out and destroys weeds.

Designed like a miniature rotary mower, the lawn trimmer attachment will even cut tall grass and weeds in hard-to-get-at spots usually missed by full-size mowers. It's especially easy to guide around trees and under shrubs.

The Roto-Stick's edger attachment trims off unsightly overhanging turf. Its high-speed action makes light of

A Terrific Bargain!

...TO PROVE TO YOU HOW EASY IT IS TO MAKE BIG MONEY JUST SHOWING THESE DOEHLA CARDS



This GIANT \$2.75 Assortment of Christmas and All Occasion Greeting Cards

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Only **25¢**

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INTRODUCTORY OFFER

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for **\$2.75**

You get 98 useful items in this big box—a sheer joy to have on hand, always ready to meet every greeting card need perfectly! Included in this Giant Assortment are generous quantities of cards for occasions such as:

Christmas Birthdays "Get Well" Thank You Friendship Correspondence Notes Sympathy Anniversaries New Babies Gift Cards Toy cards, etc.

**Make \$50 to \$250 or More
In Spare Time — Without Experience!**

IMAGINE! This giant box of lovely Christmas and All Occasion greeting cards (a big value at its regular price of \$2.75)—YOURS FOR ONLY 25¢! We make this Special Introductory Offer because we want you to see for yourself how easy it is to turn your spare time into spare dollars with the wonderful Doebla "Extra Money" Plan. No experience needed.

WITH your giant box of cards we will send you samples of our newest and most popular Christmas Card assortments on approval. Just show these beautiful, unusual cards to your friends and neighbors. If they don't snap up these bargains, send them back at our expense—and pay nothing! Mail the coupon now with ONLY 25¢ for your big \$2.75 box of cards—which is yours to keep whether or not you do anything further about the Doebla "Extra Money" Plan. Harry Doebla and Associates, Studio 9-W167, Nashua, N. H., or St. Louis 1, Mo., or Palo Alto, Calif.

THIS COUPON WORTH \$2.50

HARRY DOEBLA AND ASSOCIATES,
Studio 9-W167,
(Address any one of these three offices) { Nashua, N. H.
St. Louis 1, Mo.
Palo Alto, Calif.

As a Special Introductory Offer, please send me the GIANT \$2.75 assortment of Christmas and All Occasion Greeting Cards (98 pieces) for which I enclose 25¢ as payment in full. Also send samples of your most popular Christmas Card assortments on approval and full details of the Doebla "Extra Money" Plan. (Offer limited to one to a family.)

Name..... (Please Print Clearly)

Address.....

City.....Zone.....State.....

☐ I enclose 25¢ as payment in full.

☐ I enclose 25¢ as payment in full.

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1958 DELTAGRAM YEARBOOK



A big, 120 page volume, handsomely bound in durable hard covers. Packed with nearly 50 complete projects—dozens of shop ideas—more than 300 illustrations and drawings! Regular \$1.75 value.

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Versatile Home Repair Kit



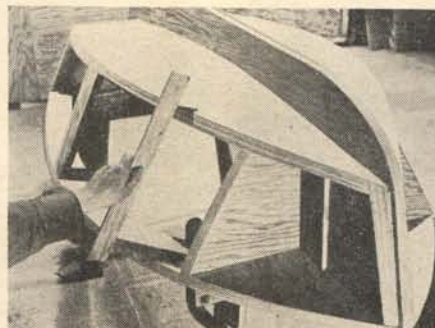
A NEW home repair kit for small household and automotive jobs has been marketed by Taylor and Art Plastics, Inc., 1710 East 12th Street, Oakland 6, California.

Called the WeldKit, it will retail at \$1.98. The kit contains Fiberglas cloth, and liquid and paste plastic compounds which harden and adhere to repair fractures, cracks, tears or dents in metal, wood, plastic, cement, and ceramics.

Designed for the maddening little things that go wrong from time to time, the kit is suitable for resetting screws and bolts, fixing broken or loose handles, mending pottery, stopping plumbing leaks, filling dents in appliances and furniture, resetting or grouting tile, repairing dented or torn auto fenders, doors, or roofs, and many other annoyances that add up to spoil a whole day.

All necessary applicators are included, along with fully illustrated directions. The materials in the kit do not rust, rot or corrode.

Small Boat Kit



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first conceived by the Evans Products Company, Coos Bay, Oregon.

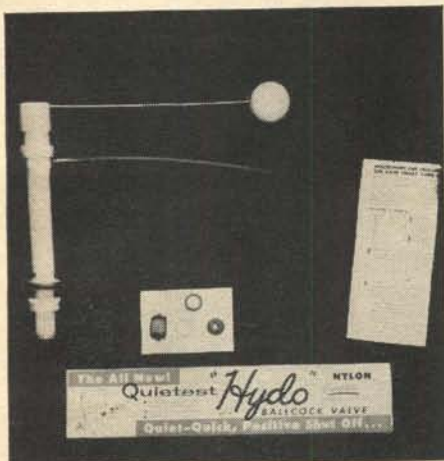
The company precuts all the pieces at the factory and packages them in a convenient carton. First introduced in Florida, the boats were an instant success. The builder simply assembles a complete boat that comes ready to put together straight from the carton. Most boats are completed in a weekend.

Called the Kiddie Boat, the little sailer is five feet long from bow to stern. It has an outboard rudder controlled by a tiller. Under sail it controls quickly, reacting not unlike boats much larger and faster. The Kiddie Boat kit includes basic materials for construction of the hull, rudder, mast and graphic instructions. The package can include sail and hardware.

The Kiddie Boat is made to be both a sailboat and a dinghy. In dinghy use the sail, mast and rudder are removed and the boat is rowed. The mast is easily taken down by simply removing a retaining pin and lifting the mast out of its socket.

Kiddie Boats are available through lumber dealers, hobby shops and some large department stores. For additional information write to Evans Products Company, Plywood Division, Coos Bay, Oregon.

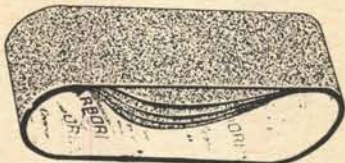
Noncorrosive Commode Tank Valve



IF YOU are tired of commode valves that whine, whistle and leak you may want to try the new Hydo Hydraulic Valve.

A patented method makes Hydo utilize water pressure to shut it off. It is noncorrosive because all metal parts are stainless steel, remaining parts are nylon and the floatball is solid polyethylene. There are only two moving parts. It works with from 5 to 250 lbs. water pressure. Everything comes in one box for easy installation in any standard commode. Priced at \$5.95 from Austin Manufacturing Corporation, 305A Perry Brooks, Austin, Texas.

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I enclose check or MO for \$..... Send me:

_____ 5 oz. Cans Advanced Formula Wax at \$2 ea.

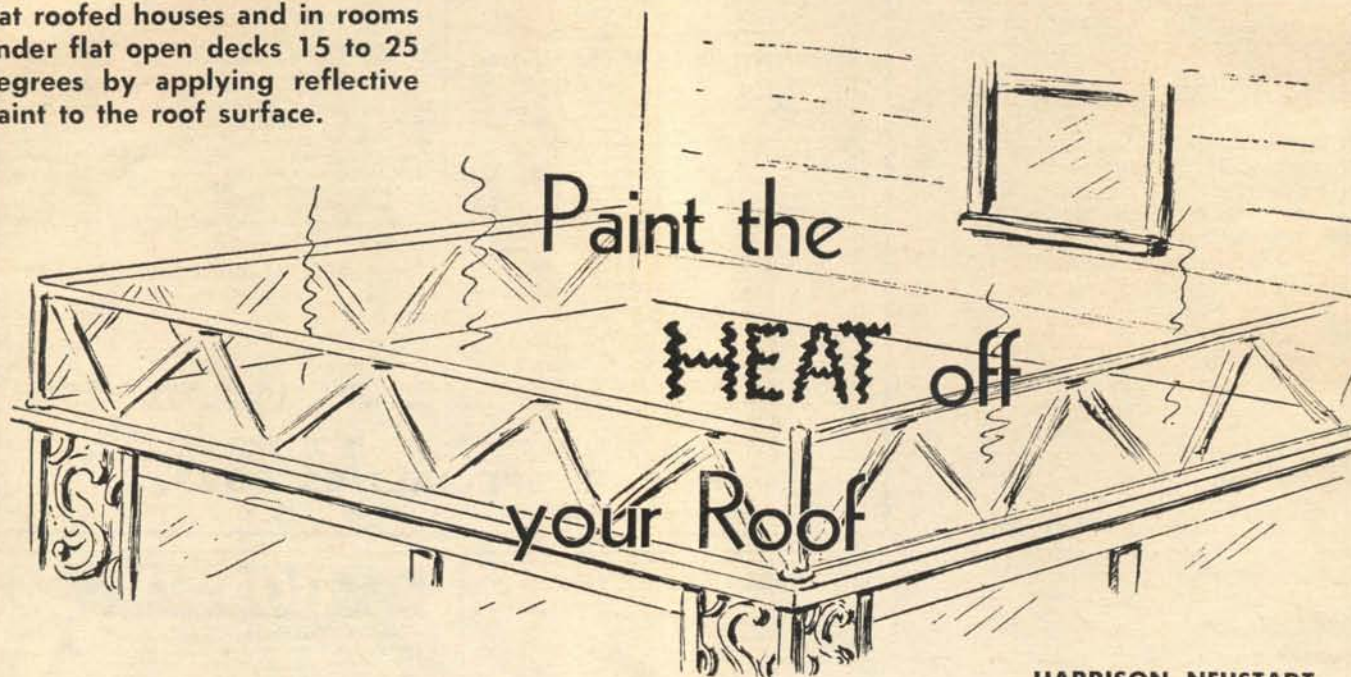
_____ 16 oz. Cans Reconditioner at \$1.45 ea.

Name

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You can cut temperatures inside flat roofed houses and in rooms under flat open decks 15 to 25 degrees by applying reflective paint to the roof surface.



HARRISON NEUSTADT

THE STEEPLY pitched roofs of the suburban developments are the antithesis of city houses with roofs flatter than the proverbial pancake. Unlike the top story of a country dwelling with a ventilated attic to keep it cool in the summertime, the upper story of a city residence with a dead air space between the roof and the ceiling, hot enough to make griddle cakes, can be unbearable on a hot summer day. Houses with flat open decks over certain rooms also present a cooling problem.

To make the picture (sorry, the roof) blacker, the roofing is usually a dark material which absorbs heat. Roof surfaces that absorb the sun's heat pass on that heat into the building. Transmission of such intense

heat through the roof can on a 90- degree day show thermometer readings above 140 degrees within the air space, and be 15 degrees warmer than a reading in the direct sunlight. Thus the upper story rooms may well be 15 to 30 degrees warmer than those on the lower floor which are equivalent to temperatures in the shade.

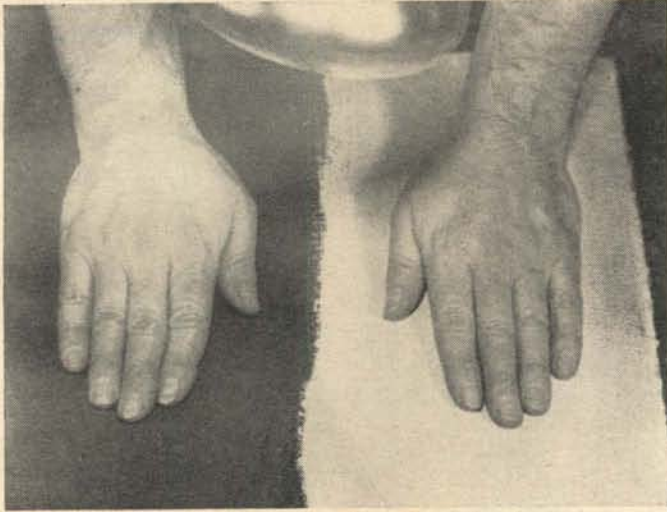
Air conditioning operating costs go up for top floor apartments and rooms and often include bills for more frequent maintenance and earlier obsolescence of equipment.

A sure cure for a roof with a high temperature is a reflective metallic coating to deflect the sun's rays before the radiant heat soaks into the surface and is absorbed by the structural components and the air beneath it. Turning back 60 to 75 per cent of the sun's radiant energy with a reflective coating will result in indoor temperatures comparable to those in the shade, often 15 to 25 degrees cooler than before. Thus more comfortable living conditions prevail, and, where air conditioning is installed, decidedly lower operating costs.

Besides keeping a roof watertight, aluminum roof paint's high reflectivity of light and radiant heat keeps it cool, prolongs its useful life and prevents heat and actinic rays from drying out the essential solvents, oils and bituminous ingredients necessary to keep the roofing pliable and able to withstand expansion and contraction caused by sudden and extreme variations in temperature. Roof covering must be tough to resist the destructive forces of nature. Heat, cold and moisture take their toll; damage to the surface, where water may enter to cause annoying and expensive repairs can be avoided by periodic restoration of the roof surface to retard drying, keep it from becoming brittle, seams from opening, developing cracks, and leaks starting. How frequently this may be necessary depends on the



BEFORE you apply reflective paint, badly worn spots should be patched with roofing felt stuck on with roofing cement.



COAT HALF of a 1-by-2-foot piece of roofing felt with aluminum roof paint; when dry expose it to a strong light source or sunlight; you can feel the difference in temperature on the uncoated side.

type and quality of the roof paint used.

Where the preservation of the roofing material is the only consideration and appearance or heat absorption are unimportant, black asphaltic roof paint has long been the accepted standard method for prolonging the life of the roof finish. This is, of course, much less expensive than replacing a badly deteriorated roof. The average time between renewals of the ordinary asphalt roof paints is usually five years. However, today you can buy a black fibrated roof paint with the manufacturer's written guarantee for a watertight roof with 12 years between coats. This product uses Fiberglas as a binder, instead of asbestos fibers; these inert fibers are longer and form a spider web structure to produce a denser reinforced film of great tensile strength.

You don't need a flock of scientific instruments or as much as a thermometer to find out how much cooler a reflective surface can be. It is quite simple to test the light reflecting powers of an aluminum coating. Coat with roof paint, and allow to dry, one half of a 1-by-2-foot piece of black roofing felt. Expose it to the sun, or other strong light source, for a few minutes; the unpainted side which has absorbed heat will feel quite warm to the touch; you will be amazed at how much cooler the coated side, which has reflected the heat, really feels.

There are three kinds of reflective roof paints. One is asphalt aluminum which is least expensive, and is fine for smooth surfaces which require protection from corrosion, such as galvanized iron, tanks, pipes, etc., exposed to the weather. It will not give lasting protection to built-up roofs with finished roll roofing, slag gravel. These roofs should be coated with fibrated roof paints. A second type is asphalt aluminum reinforced with asbestos for a more durable finish. It should last about 10 years. A third type of roof compound with glass fibers added to the vehicle plus the aluminum pigment provides an even tougher longer lasting finish, and when used to restore old roofs of paper, felt composition, metal or concrete will effectively seal tiny cracks, nail holes and seams.

A clean, dry, well swept roof is imperative for the proper adhesion of a roof coating. Remove all loose material such as gravel, leaves, dirt, dust, rust scale, etc.; blisters should be opened up, and loose paint scraped off before the roof coating is applied. A wire brush may be used for this purpose. Badly damaged roofing, large holes and open cracks require remedial measures and should be filled in with a good grade of roofing cement troweled on; for a better job, a patch of roofing felt should be stuck on to the cement and

troweled over. Replace soft and rotted insulation boards with new material roofed over with several plies of felt cemented in place. For roofs to be finished with aluminum roof paint, an aluminum roofer's cement should be employed. If the roof is severely weathered and dried out, some paints require a special thin roofing primer to resaturate the felt. This will add to the over-all cost and must be reckoned with in the estimated cost of the complete job.

A word of caution: do not attempt to carry heavy containers of roofing material up ladders! It is much easier and safer to hoist them to the roof with the aid of a stout rope.

All that is needed to spread a shining armor of aluminum over the roof is a scrubbing brush on a stick, a squeegee or paint roller. The brush will get the material into crevices with ease, and use the least material. The squeegee is good to float material over very rough surfaces. The roller will work well on fairly smooth roofing and can be best used on newly finished roofs. A mop may also be used on roof finished with roll roofing.

Carefully applied the proper amount of material should evenly cover the surface with a film of uniform thickness. Thin bodied paints may cover as much as 400 square feet, whereas, the same quantity of the heavier fibrated types will cover only 200 square feet. Avoid spreading it too thin; too much brushing will break and destroy the fibers. A good method is to float the compound on in one direction and then lightly stroke it in the opposite direction to even it out. Keeping the contents of the container thoroughly mixed is important for a constant and uniform film. Thinning with additional solvents should not be necessary or resorted to.

Though no particular skill is required to apply a coat of aluminum roof paint, a little bit of care will produce a roof of lasting durability that will resist weathering for many, many years and, as an extra bonus produce a cooler more comfortable house.

THE END



REFLECTIVE COATING is best applied in one direction, with light final stroke in the opposite direction at 90 degrees.

Cut Down Summer Humidity in your Basement

Until you can afford a more expensive one, here's a basement dehumidifier that you can make yourself for only a few dollars.

PHILIP BARSKE

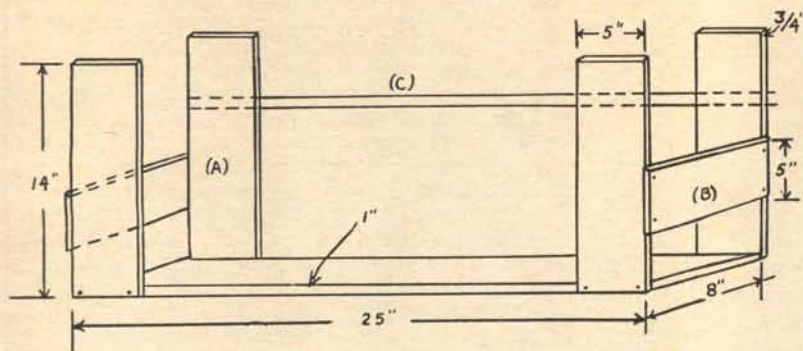


FIGURE 1

FIGURE 1—Tire rack made of scrap lumber; any support rigid enough to hold a half tire will do the job.

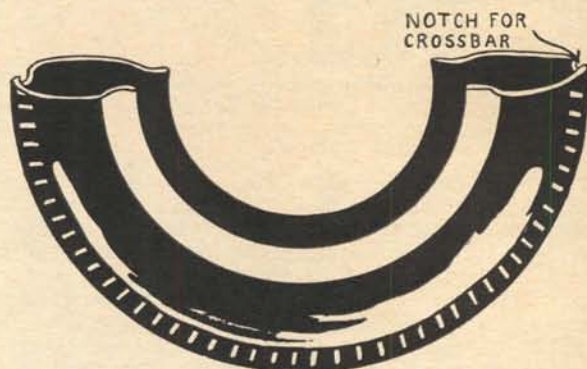


FIGURE 2

FIGURE 2—Automobile tire cut in half. Be certain tire does not have holes for otherwise fluid will leak over the floor. Notch ends of tire to hold crossbar

IN THE middle of July the average homeowner wishes he could scrape together enough money to purchase an electric dehumidifier to keep the basement dry and odorless. If he can, fine, but if he can't, there is an inexpensive do-it-yourself alternative.

Besides the moisture and the annoying odor of a damp basement, tools rust, furniture warps and, something not generally considered, molds and fungi grow fast and furiously in a hot, damp cellar and these tiny plants can be most annoying to allergic individuals.

Many homeowners have heating units that can be reversed to blow cool cellar air but, as in my case, after I turned on the blower and got a whiff of damp, smelly air I decided the heat and humidity of the fresh out-of-doors was easier to take.

To rid my basement of most of its dampness I made an appliance that does a very good job and at a very low cost. Simply by using an old car tire and a bag of calcium chloride which absorbs moisture from the air, a basement can be kept dry.

To make a dehumidifier requires only the usual household tools and the price of a bag of calcium chloride that should last almost or all of the summer (cost, approximately \$3). Calcium chloride is obtainable at most lumberyards or larger hardware stores.

A tire casing can usually be picked up at a local service station. However, be sure to get a tire with no leaks, as it must hold liquid. About one yard of quarter-inch hardware cloth or other wire mesh is used to hold the calcium chloride and this container should be lined with screen wire to prevent the calcium chloride from spilling out. Plastic screen wire is best for it does not corrode.

A WOODEN frame or cradle must be built to hold the tire. Scrap lumber or an old crate may be used to act

as a cradle for the tire. Lumber needed for a rugged cradle is approximately the following:

10 feet of 1" x 5" boards

2½ feet of 1" x 8" plank for baseboard

6 feet of 1" x 1" furring strip for side supports

A wooden rod or a metal rod (an old TV antenna is handy) makes a convenient holder (Figure 5).

Almost any device that will hold the half tire securely in place will do the job. However, be it simple or elaborate, be sure it is sturdy for spillage should be prevented. A surprising amount of water is gathered in a week or less. Calcium chloride solution is corrosive and it's best not to have it spilling on the floor. Metal containers can be used to catch the moisture drippings but the corrosive action of the solution would likely eat through metal in one season.

My racks (Figure 1) have been simple and I used nails to join the various parts. Screws can be used but it merely means a little more effort. Supports (B) are placed at both ends of the rack. These provide support for the uprights and also serve to hold the ends of the tires firmly in place.

Thin furring strips (C) are nailed or screwed to the uprights (A) to provide additional support to the tire.

Use a half of a tire that has no puncture holes. Cut the tire in half by using a hack saw to cut through the tire beads and then sever the rest of the tire with a saw or knife.

With a knife or hack saw, cut two V-notches in the ends of the tire (Figure 2). These notches will serve as guides to hold the rod that supports the calcium chloride basket.

Calcium chloride is the important ingredient in this dehumidifier for this chemical has great moisture attracting qualities and will pull humidity and dampness out of the air and deposit it as water in the catch basin (the old tire).

In making a basket to hold the small, flake-like calcium chloride crystals, some care should be exerted. A basket should be made that will allow for easy filling and that will fit easily between the inner parts of the tire.

To fit the dimensions of the average tire, a basket (Figure 3) roughly 18 inches long, 9 inches deep and 7 inches wide works well. About $\frac{1}{2}$ yard of $\frac{1}{4}$ -inch hardware cloth or stiff wire mesh is enough for this basket. Even 1-x-2-inch turkey wire can be used to make the basket. If stiff wire is used for the basket it merely is folded in half and then the edges lapped over and wired together (allow 4 inches extra on the length to allow for lapping at the edges). Bend in all edges to prevent injury to persons and also to strengthen basket. When the basic basket is made, line it with screen wire for this will prevent the calcium chloride from spilling out (use plastic screen for it is easier to fit into the basket and it will not corrode). Attach the screen wire by small pieces of wire.

The holder for the calcium chloride basket may be a pole of any sort. Used TV antenna rods make excellent crosspiece holders (Figure 4). The basket is attached to the holding rod by loops of wire. These loops can be adjusted to position the basket properly.

WHEN THE rack and the basket are completed (Figure 5) the dehumidifier is now ready for placement in the basement and to be loaded with calcium chloride crystals. Load the calcium chloride to almost the top of the basket. I use a pair of rubber gloves and a coffee can to transfer the crystals from the bag to the basket. Calcium chloride is a powerful moisture attractor and

the crystals required to fill a basket of the size suggested will be nearly used up in one week in humid summer weather, for as the calcium chloride crystals absorb water, they dissolve. The greater the supply of calcium chloride, the greater the moisture absorption.

Calcium chloride fluid is quite corrosive and it is suggested that care be used in its handling, for it can irritate the skin. It is further suggested that the fluid collected not be poured down cellar drains unless the pipes are made of tile or are not metal. One use for the calcium chloride liquid is as a weed killer. (I use the material to kill grass and weeds at the edge of my garden). A simple, shallow hole in the corner of a garden is a good place to dispose of the fluid.

During midsummer the dehumidifier will gather a surprising amount of water. Check at least once a week to empty tire and to refill the basket with crystals. Tires may be emptied by removing the basket and supporting rod and then tipping the rack on one end, or the tire may be lifted out and the fluid poured out of one end into a pail (a very convenient pail is a 5-gallon paint or tar can).

During the worst periods of cellar dampness, usually July and August, two dehumidifiers will keep the average cellar fairly dry. Be sure to keep windows closed, for otherwise you will be constantly absorbing air-borne moisture.

On dry windy days it may be advisable to open and air the basement but otherwise closed windows help keep moisture out. The use of the dehumidifier will make the difference between dampness and rust and a dry basement.

THE END

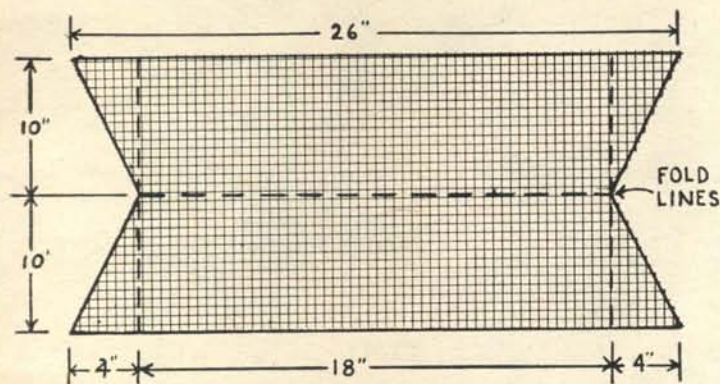


FIGURE 3

FIGURE 4—Finished basket to hold calcium chloride crystals. Roughly formed of any stiff wire mesh and lined with screen wire to prevent crystals from spilling.

FIGURE 3—Calcium chloride basket. Lay out the approximate dimensions (as indicated) on a piece of hardware cloth or other stiff wire mesh and mark fold lines with a chalk or paint. Cut to the dimensions and then fold the wire at the "fold" lines; this will produce a narrow basket that now needs wiring together.

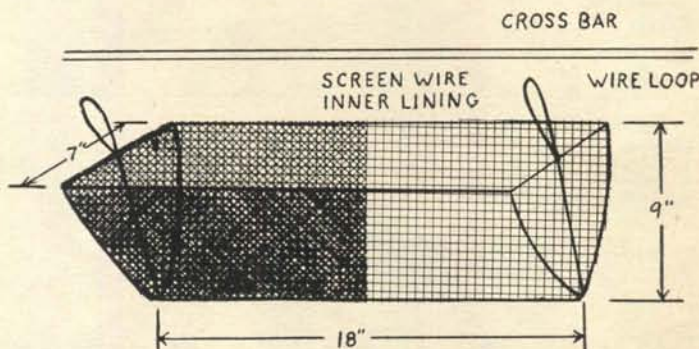


FIGURE 4

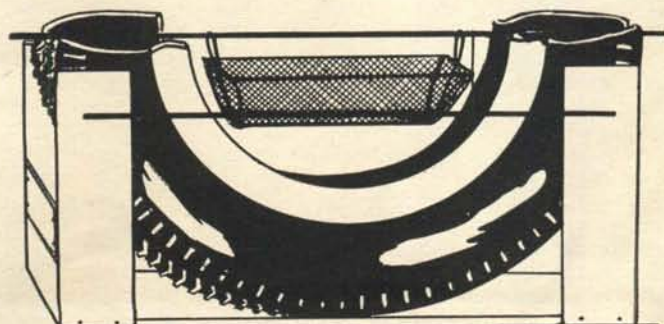


FIGURE 5

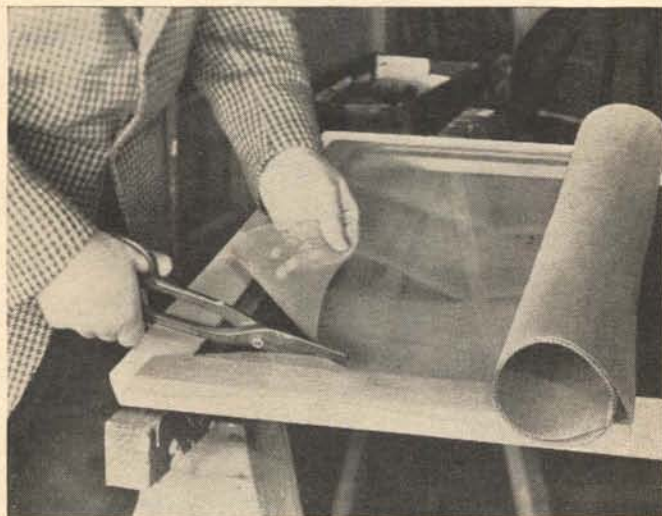
FIGURE 5—Completed home dehumidifier, cradle is solidly made and wire basket so placed that water absorbed from the air drops into the bottom of the tire.

New Screening REPELS Midsummer Insects

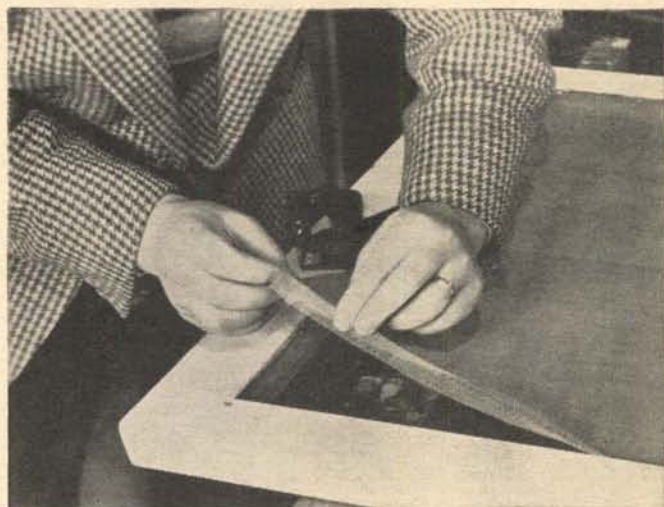
TED MORGAN



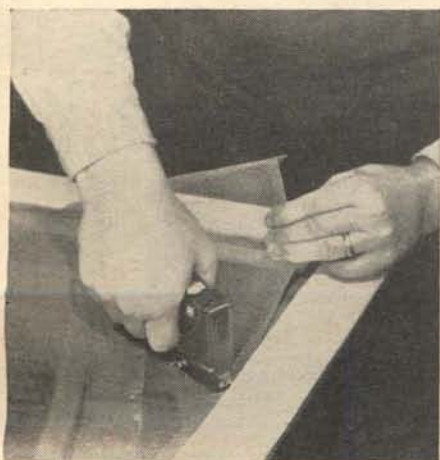
1. REMOVE molding and old screen.



2. CUT SCREENING with ordinary scissors or shears to fit the frame opening, allowing a one-inch overlap on all sides.



3. FOLD UP OVERLAP to create double thickness where screening will be tacked or stapled.



4. STAPLE OR TACK every inch along the sides, maintaining tension. Replace molding and screen is ready to use. It might be a good idea, as long as you are involved, to repaint the screen frame, if it needs it.

THE COMING of spring faces the householder with so many chores in yard and garden (and there is also the call of the golf course and the fishing stream) that an essential task often overlooked is making sure that all your screens are insect proof. As a result, along sometime in mid-summer you suddenly discover that mosquitoes have invaded your bedroom and houseflies have moved into the dining area.

Faced with this emergency, calling for new screening, you might try a screening material that offer several advantages — Fiberglas. It won't stretch and it can easily be pulled taut over an area. Once secured it will never sag or bow the frame. Neither will it bulge, even though

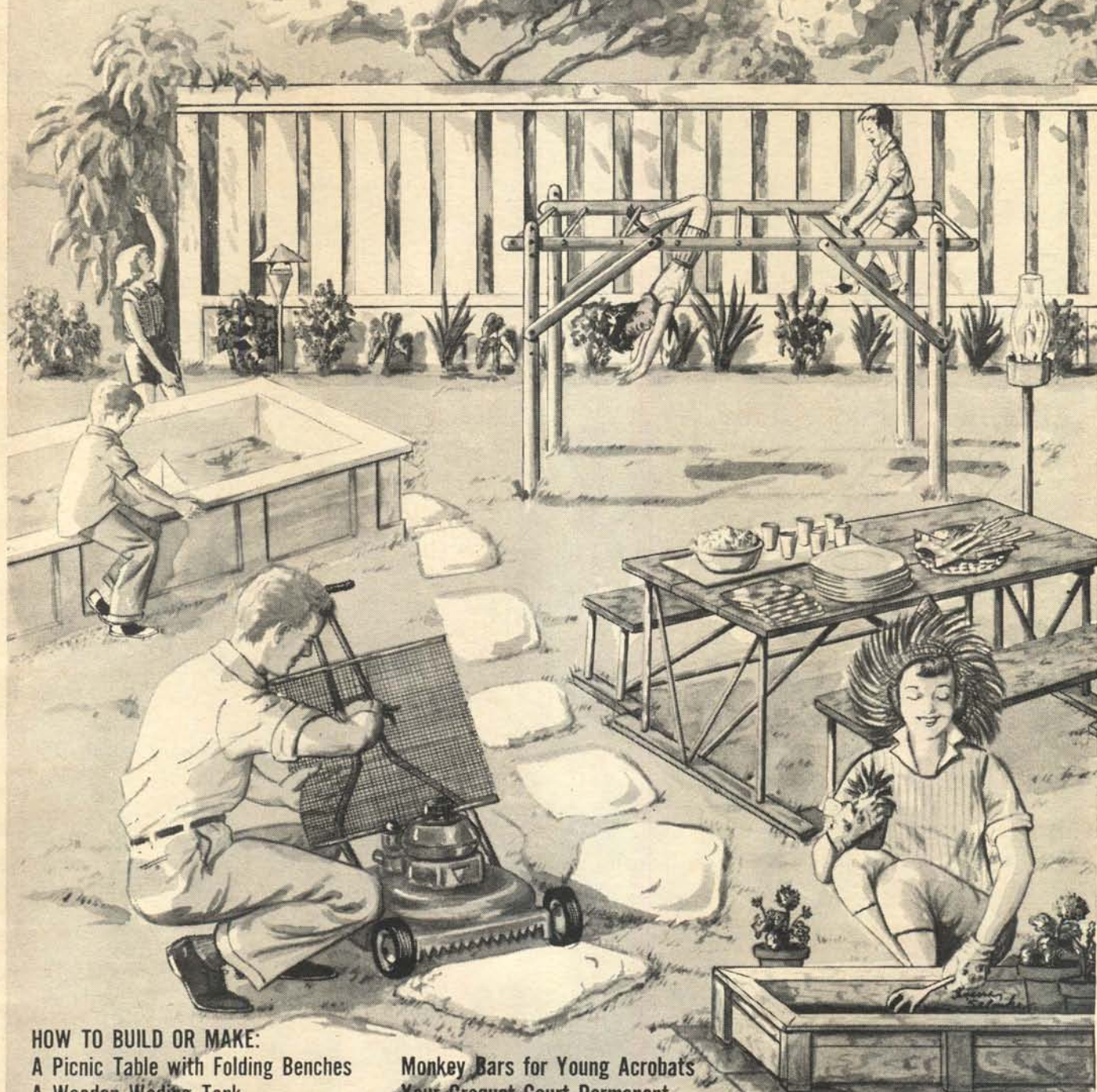
children and pets may abuse it. It won't stain painted areas beneath.

This screen cloth is made of fibers of glass which are inorganic, completely resistant to the elements and dimensionally stable. The glass fibers are coated with a thin film of vinyl and then woven into screen cloth which is available at most hardware stores and lumberyards.

In coastal areas where salt air will rapidly corrode metal, Fiberglas screening gives the user a kind of bonus — its resistance to such corrosion.

Putting the new screening into your old frames is one of the simpler of do-it-yourself projects. The accompanying photographs show you how to do it.

Accessories For Happier Outdoor Living



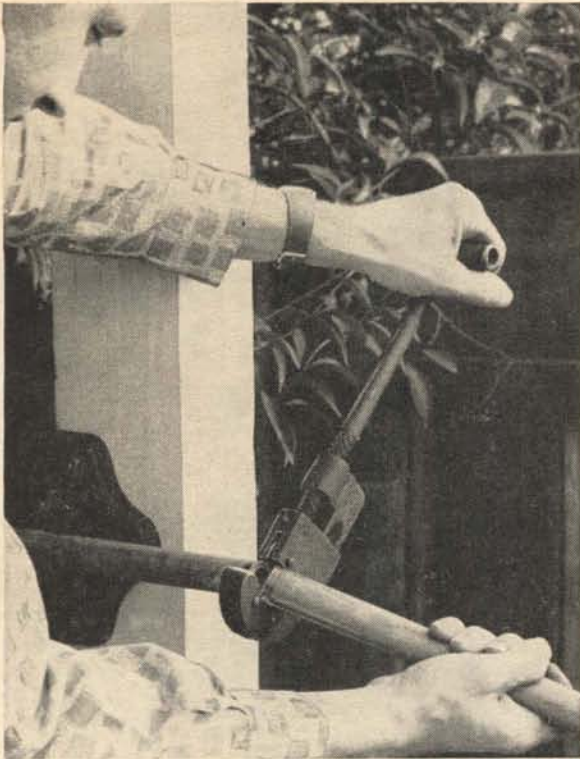
HOW TO BUILD OR MAKE:

A Picnic Table with Folding Benches
A Wooden Wading Tank
A Brick Barbecue Oven
A Same-on-Both-Sides Fence
A Steppingstone Walk
Lights for Your Patio
Two Outdoor Benches

Monkey Bars for Young Acrobats
Your Croquet Court Permanent
A Patio Planter
A Portable Picnic Table and Seats
A Lattice Screen for Outdoor Privacy
Outdoor Chores Easier
Power Mower Safety Guards

Add Hydrants for Easier Watering

Extra Hydrants Ease



1. **ATTACH PIPE VISE** to post and cut galvanized pipe to predetermined lengths. Slip cutter over pipe, tighten handle, revolve around pipe. Give the handle a quarter turn and repeat process. Never force the cutting tool too deep at one bite.

WHETHER YOU have just purchased a new home, or have lived in one location for years, there will come a time when the added convenience of extra water hydrants, placed at strategic locations about your yard will seem necessary.

Extra hydrants mean less dragging of hoses about the yard, permit more areas to be watered simultaneously, and make it possible for such varied chores as washing the family car and watering the fruit trees in the back yard to be accomplished without difficulty.

No special knowledge of plumbing is necessary, and the only needed tools not owned by the average handyman—the cutter and the ratchet-type threader—can be rented for a very small charge at your local hardware store.

Decide in advance where extra water hydrants

2. **RATCHET-TYPE THREADER** is easy to use, can be rented at many hardware stores for a small fee. Be sure to use cutting oil liberally while working. About $\frac{3}{4}$ -inch of threads is sufficient.

3. **CAULKING COMPOUND** is always used at couplings. Linseed oil, old paint, or tube-type, as shown, can be utilized.

4. **MOST HOUSE LINES** are standard $\frac{3}{4}$ -inch pipe, but check to be sure. Smaller than $\frac{1}{2}$ -inch pipe would result in drop in line pressure at spigot. Use reducer connectors on pipe to affix faucet head. Tighten all fittings at pipe vise when possible.



Outdoor Watering Problems

V. LEE OERTLE

would be most convenient, then measure distances from there to the main water source to obtain the proper amount of pipe to be purchased. Make a simple diagram on paper, and the number of pipe connections such as "T" and "el" fittings will become quickly apparent.

Plan the job at a time when you are sure to finish it. Make sure you have all plumbing materials necessary to the installation before beginning, or you might wind up short one "el"—with the lines cut into and water pressure shut off. If this happened on a Sunday with supply sources closed, the fact that there was no water available might well prove inconvenient.

The project illustrated in the accompanying photographs took about two hours of an amateur's time. More than one hydrant would increase the length of time allotted to the job.

THE END



5. TURN OFF water pressure at meter, or at main-line source, before attempting to install the hydrant standpipe. To avoid installing separate water lines, attach feeder pipe directly to meter outlet, as in Photograph 6.

6. MOST WATER METERS are installed near the surface; this means that the main line into house must drop down to a depth of from 12 to 18 inches or more, depending on the frost line. Where the line leaves the meter, it will enter an "el" connection, then drop down to depth of main line, where it again shoots toward house. Remove the "el" connection where it emerges from meter box, and replace it with a "T." This completes the usual pattern, but allows an extra opening

into which the new water line can be inserted. Simply run a length of pipe out from this "T," connect the standpipe and faucet. Be sure water pressure has been shut off before removing the "el" fitting, however.

7. KEEP WATER LINES buried well below frost line to avoid freezing and splitting. Add a "T" connection to end of line out

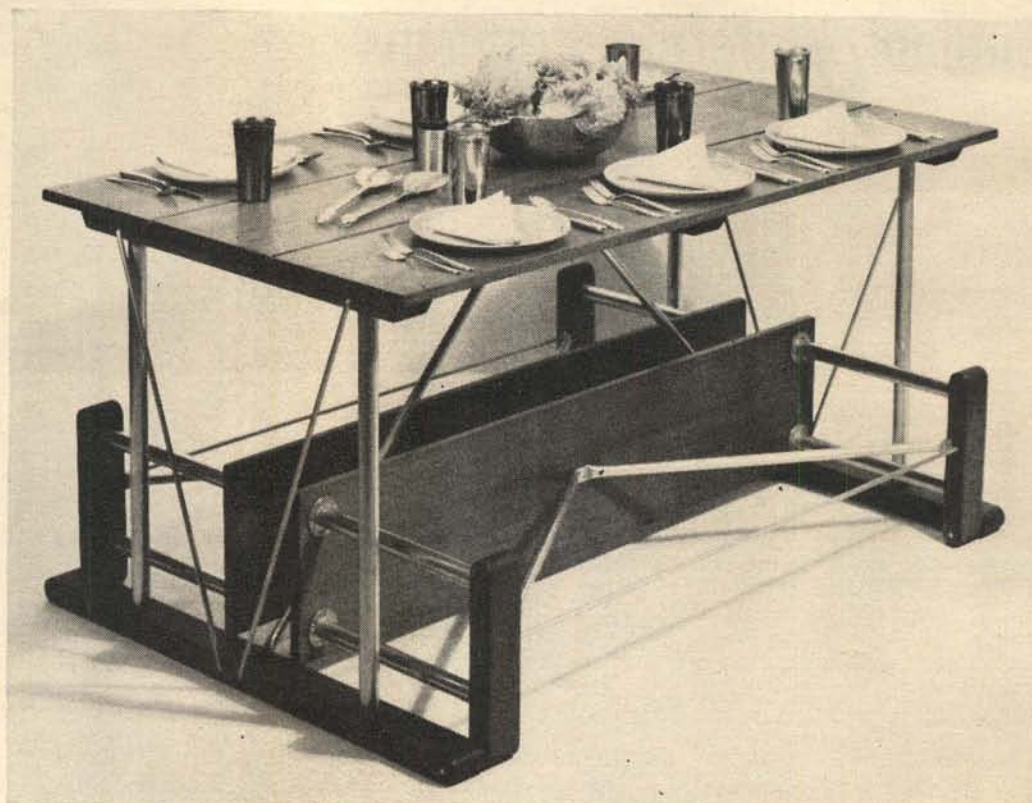
from meter box, place standpipe in upright position and tighten. Place end plug in open "T" for future plumbing facilities.

8. STANDPIPE HEIGHT is determined by personal convenience. It should be high enough to be easily used, but low enough to avoid becoming an eyesore in yard. Flush all lines out with open valves to remove dirt, metal particles, before using hydrant.



Patio-Picnic Table

with Folding Benches



FOLDED AWAY under the table these benches stay dry, cool and clean before use. See front cover for benches ready for use.
—Photograph courtesy of Reynolds Metals Co.

BACK YARD entertaining will be greatly simplified with this efficient outdoor table. The benches tilt away under the table to keep them cool and dry until ready for use and, when in use, arrangement of benches make it possible for guests to slide in from the ends rather than climbing over the benches. Built of durable redwood and rustproof Do-It-Yourself aluminum, your picnic table will weather nicely all year round.

CONSTRUCTION PROCEDURE

1. Begin by cutting table legs and bench legs from $1\frac{1}{4}$ " aluminum tubing, using a fine toothed wood-working saw (Figure A). Then trim out the burr from the inside of the cut ends with a pocket-knife.

2. Make the long diagonal braces from the $\frac{3}{4}$ " aluminum tubing by cutting them to length, then flattening and bending the ends in a vise (Figure F). Bend up the bench handles similarly from $\frac{3}{4}$ " tubing. Drill the flattened ends for No. 8 R.H. wood screws.
3. Cut the $\frac{3}{8}$ " aluminum bar to lengths for the table end braces, bench tie rods and pivot pins. Bend the ends of the table braces as shown in Figure G.
4. Rip the 2 x 6 board in half to make the 2x3's ($1\frac{5}{8}$ " x $2\frac{5}{8}$ " roughly). Then cut 2 x 3 boards to the proper lengths for the base pieces of the table and benches as well as the cleats for the table top.

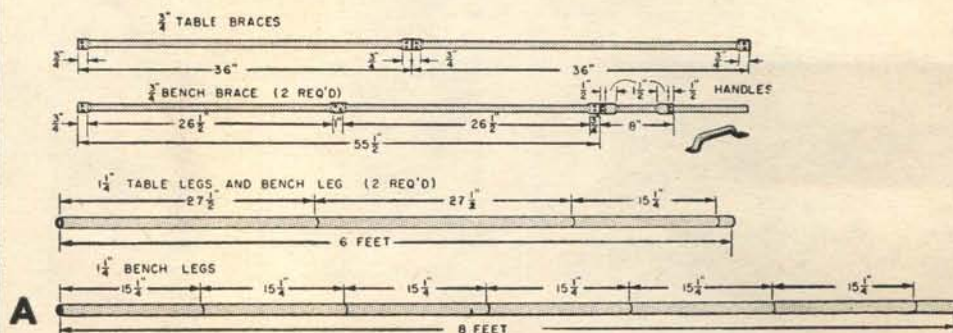
5. With an expansion bit, drill the $1\frac{1}{4}$ " holes for the table legs and bench legs in the cleats and base pieces to a depth of $1\frac{1}{4}$ " (Figure A). Use a $\frac{3}{8}$ " bit to drill holes for pivot rods (Figure H).

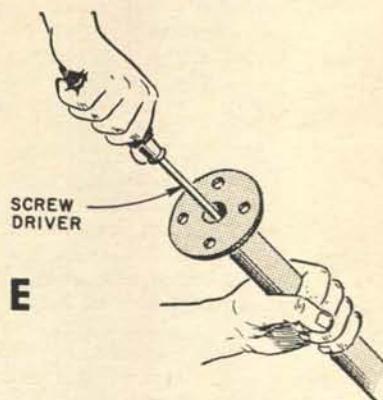
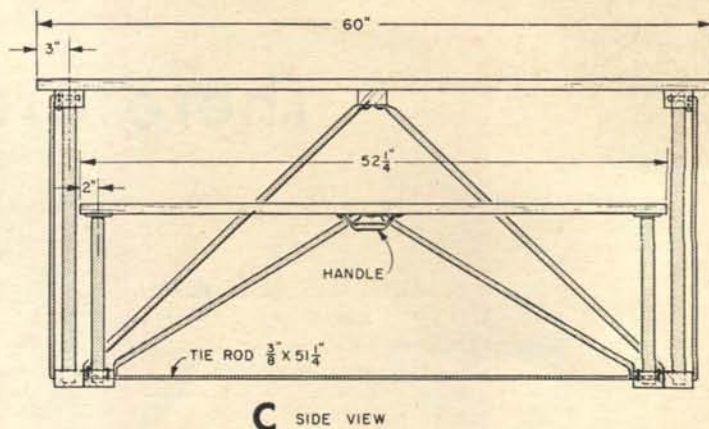
Table Assembly

6. Square the 1 x 12 top boards and screw fasten the cleats in place. With the top face down on bench, insert the legs and drill $\frac{3}{8}$ " holes through wood cleat and aluminum tubing for $\frac{3}{8}$ " diagonal rods (Figure J).
7. Attach 2x3 base pieces and drill pilot holes for the aluminum lock nails. Insert the brace rods into the cleats. Next locate and drill $\frac{3}{8}$ " holes near the center of base and insert the free ends of the

MATERIALS LIST

- 5 pcs. 1" x 12" x 60" redwood or fir
- 1 pc. 2" x 6" x 10'0" redwood or fir
- 2 pcs. $1\frac{1}{4}$ " dia. alum. tubing 6' long
- 1 pc. $1\frac{1}{4}$ " dia. alum. tubing 8' long
- 3 pcs. $\frac{3}{4}$ " dia. alum. tubing 6' long
- 4 pcs. $\frac{3}{8}$ " dia. aluminum rod 6' long
- 16 8d aluminum nails
- 20 No. 8 x $\frac{3}{4}$ " R.H. wood screws
- 32 No. 10 x $\frac{3}{4}$ " F.H. wood screws
- 16 No. 8 x $1\frac{1}{2}$ " R.H. wood screws
- 27 No. 12 x 2" F.H. wood screws



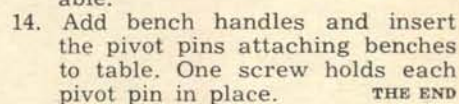


staggering the screw locations to prevent splitting.

10. Next fit 51¼" rod into base pieces, locking them in position with 1½" wood screws (Figure J).

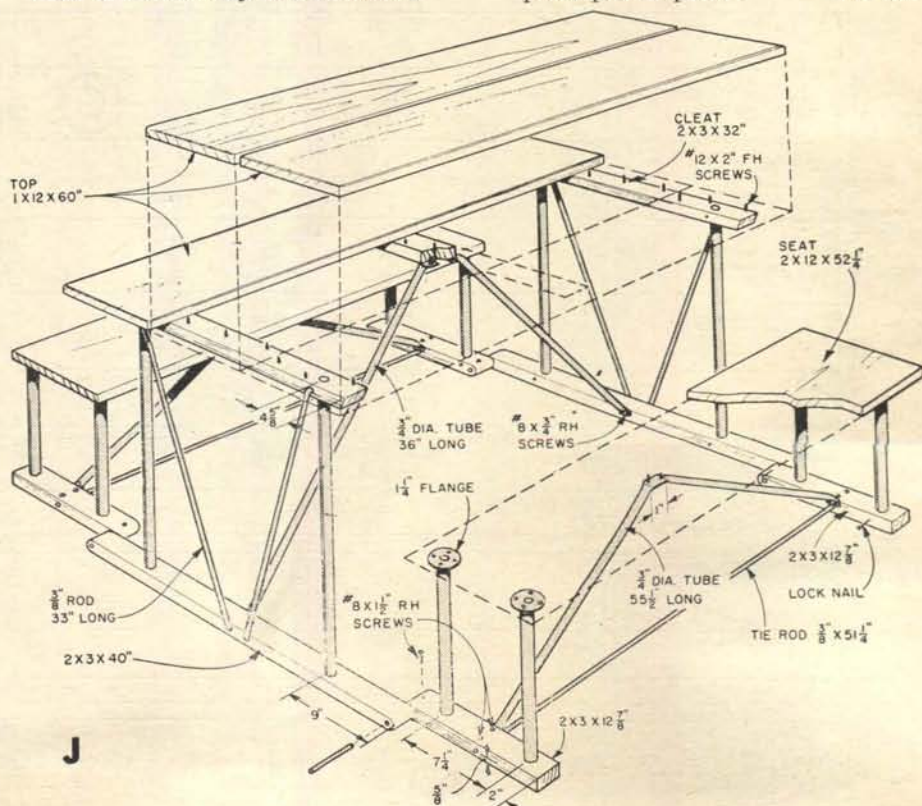
11. Install base pieces over legs, drill pilot holes and fasten with aluminum nails through wood and tubing.

12. Attach the $\frac{3}{4}$ " tubing diagonal brace with $\frac{3}{4}$ " wood screws to complete the bench. Build the second bench similarly.



Finishing

13. Finish all of the wood parts with a sealer and a coat of spar varnish. Let them dry before install-



3/8" DIA. ROD
5" LONG

TABLE BASE

LEG BASE

H TOP VIEW OF PIVOT JOINT

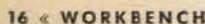
MATERIALS REQUIRED

- 6 Pcs. 2" x 4"—12 $\frac{5}{8}$ " end studs
4 " 2" x 4"—45 $\frac{1}{2}$ " footings
2 " 2" x 4"—7' 6" side bottom plates
13 " 1" x 4"—T & G 7' 6" long floor of tank
 *or
6 " 1 $\frac{1}{2}$ " x 8"—T & G 7' 6" long floor of tank
8 " 2" x 4"—11 $\frac{3}{8}$ " side studs or side bracing
8 " 1" x 4"—T & G for sides of tank 7' 6" long
 *or
4 " 1 $\frac{1}{2}$ " x 8"—T & G for sides of tank 7' 6" long
8 " 1" x 4"—T & G for ends of tank 36" long
2 " 2" x 4"—end bottom plates (40 $\frac{5}{8}$ ")
2 " 2" x 6"—48" end seats
2 " 2" x 4"—81 $\frac{1}{2}$ " side seats
1 $\frac{3}{4}$ " elbow drain with plug, caulking compound, galvanized
nails, paint and one gallon of pentachlorophenol. Cost of
everything, approximately \$25.

*You can make variations in some measurements to suit materials you have at hand. As an example, the drawing of the tank bottom shows that six pieces of 4-by-8 tongue and groove stock were used. It is possible to use a larger number of narrower boards and this was done in the tank shown in the photographs, in which thirteen 1-by-4's were used. The same thing is true in regard to the sides. On the drawing two pieces, 8 inches wide were used for each side. For the tank shown in the photographs, four pieces 4 inches wide were used.

THIS WADING tank will make a big hit with the youngsters when warm weather sets in. And when it's too chilly to wade and dip in it, the children can use it to sail toy boats. It's portable and can be moved around.

The tank shown here has a capacity of about 200 gallons. While the lumber used to construct this tank was inland red cedar any of the ten species of wood from the Western pine region would be suitable for building the tank. The others are incense cedar, Douglas fir, white fir, ponderosa pine, Idaho white pine, sugar pine, larch, lodgepole pine and Engelmann spruce. All wood used in the tank should first be treated with pentachlorophenol preservative. It does not stain the wood and after it has dried the wood may be stained or painted.



in this Wading Tank

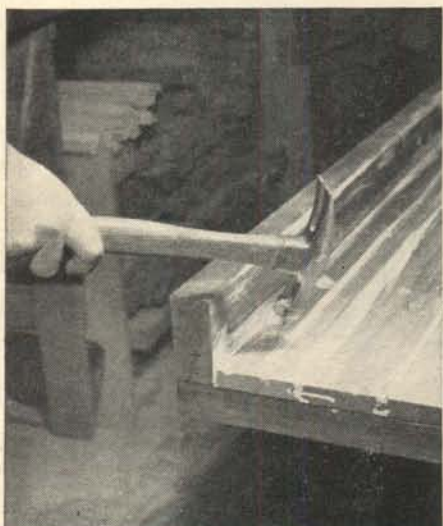
All photographs by Western Pine Association



1. APPLYING the pentachlorophenol preservative. Ends of the lumber are soaked and the solution is brushed liberally on the rest.



2. AFTER LAYING OUT the framework, put the tongue-and-groove "floor" in place, being sure to seal with a thick undercoat of white lead between each one.



3. CLOSE-UP of nailing the last tongue-and-groove piece.



4. THE UPRIGHTS of the sides are toenailed into place.

Construction procedure is as follows:

1. Tank bottom, sides and ends should be made of fairly well-seasoned tongue and groove tank stock. A No. 2 grade will be all right and will be cheaper than using a clear grade.

2. First build the bottom of the wading tank. The tank stock should not be nailed too closely, as it will close up tightly in a day or so after water is put in. Use galvanized nails throughout the tank; fill all joints

with red or white lead; then caulk the seams where the sides and ends meet the bottom.

3. Next construct the sides and ends. While all fittings in the tank may be square ends, it might be preferable to dado the ends to the sides. The vertical end and side bracing should be cut to fit snugly.

4. To finish off top edge of tank, seats can be provided, using wider pieces for ends than sides. All edges should be carefully rounded.

5. A $\frac{3}{4}$ " elbow drain should be put in tank bottom, so that water can be changed easily.

6. When completed rub inside of tank with red or white lead, although this is not essential if pentachlorophenol has been used. You can simply apply a coat of exterior paint. Give the outside some kind of a finishing treatment. One suggestion is to paint the outside walls a dark green and to give the seats a natural finish with Valspar varnish. THE END



5. CAULKING to seal along the edge. There is no tongue-and-groove joint here, so caulking is important.



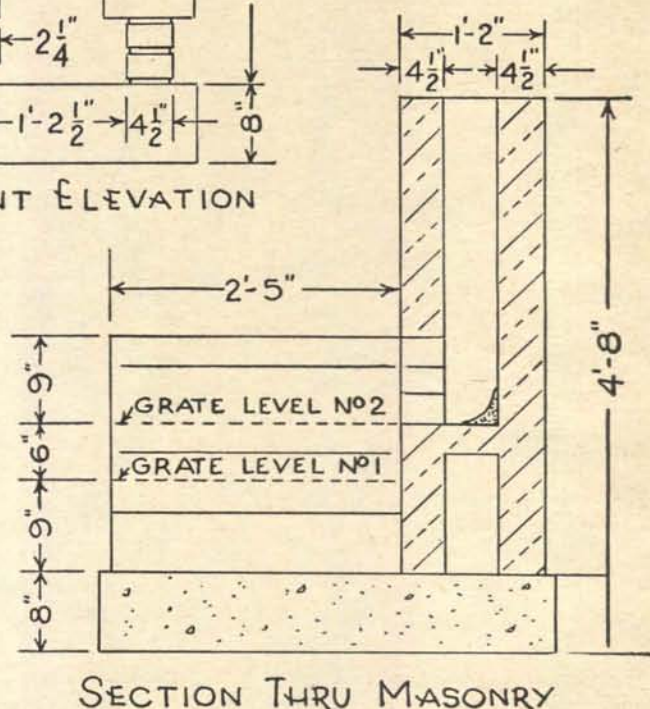
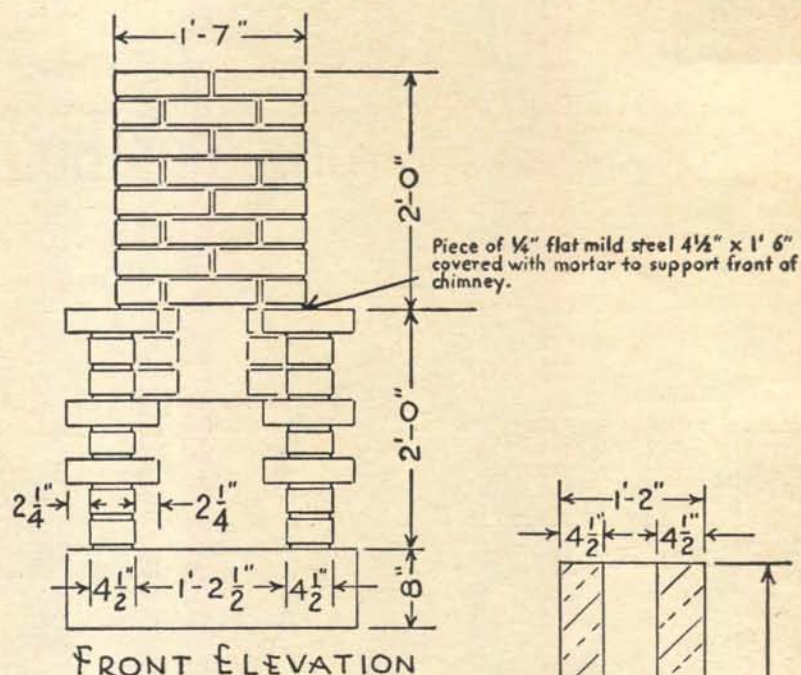
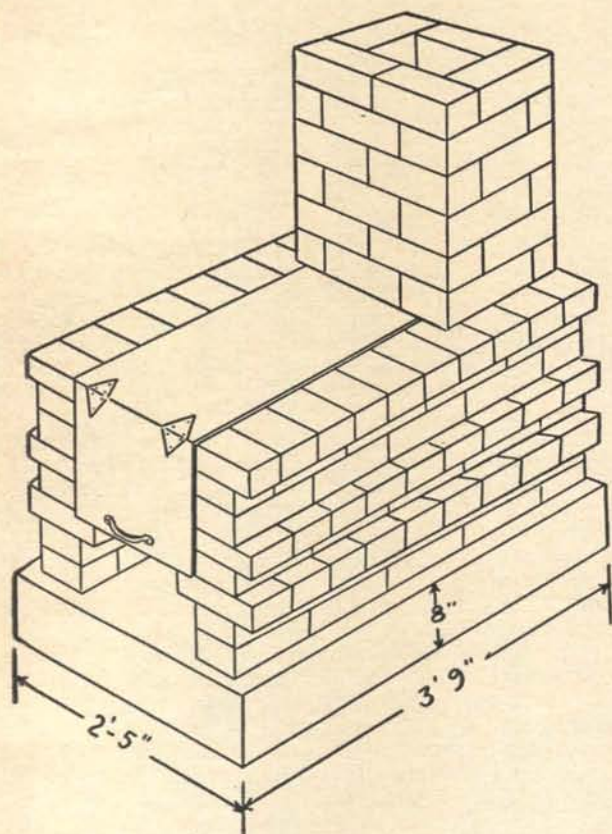
6. "BENCH" going on around the top. Note construction detail.



7. A HOLE is drilled in the bottom for an elbow drain.



8. DOUG STROBERGER at the helm as he uses the wading tank for a toy boat.



Brick Barbecue Oven

Plans by A. P. Green Fire Brick Co.

IF YOU would like a permanent barbecue oven in your yard, here are working drawings for one made of brick which is relatively simple to construct.

This oven will require 175 9" by 4 1/2" by 2 1/2" firebrick. They should be laid on a concrete base. Construct forms of 8-inch lumber to give proper thickness to base. Use one part cement to two parts of sand to four parts of gravel or rock for base. It should be set at ground level with a slight fall toward the front for drainage. Knock forms off base after about 24 hours.

In laying brick use 1/2-inch mortar joints. Mortar mix should consist of one part masonry mortar to three parts sand with enough water to produce best consistency for troweling.

The hood and front door of the oven are made of 10-gauge steel plate. The hood is 18" x 2' 5". It is merely set in place and can be removed at will. The front door is 18" x 15" and two small strap hinges are used to fasten it to the hood. Attach a small handle so door can be easily lifted.

This oven has two grate levels and you may either obtain two grates, 1' x 2" x 2' x 4", or simply use only one grate, shifting it to either of levels desired. THE END

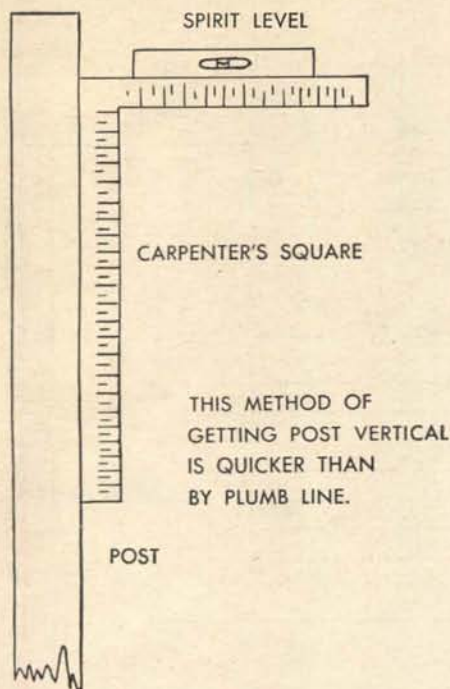
Build a

Same-on-both-Sides

Fence

Laurence M. Bourne

FIGURE A



picket and post arrangements are given in the box below.

Erect end posts first, making sure they are in correct position with regard to property lines. Dig postholes two to three feet deep and fill space around posts with stones, broken bricks, dirt, etc. Use plumb line or square and level to get posts vertical (Figure A). Tamp solidly in place.

Stretch a string tightly between the centers of these two end posts and then cut a light measuring stick the length you have decided on for each section. Directly below the string locate centers of intermediate postholes with your measuring stick.

Release string, dig remainder of holes and put posts loosely in place. Line them up by "sighting through" from one end. Great care is essential at this point to ensure posts being vertical and exactly the correct distance apart.

When posts are in required positions make solid by tamping as before. For the present, leave them slightly higher than needed (height is roughly adjusted by placing stones in bottom of postholes).

BASEBOARD comes next. Find position of top edge by stretching string along posts 9 or 10 inches above ground. Stand back and compare with general run of the land. Raise or lower as needed and mark posts where string touches, being sure there's no sag.

From these marks measure up length of a picket plus $1\frac{1}{2}$ inches and mark again. Square a line completely around post at this mark and carefully cut off top. Use a sharp saw (Figure B).

So baseboards won't be wobbly scoop out a shallow trench between posts. Nail short pieces of 2-by-4 at bottom of posts and onto these nail two holding strips to form 1 inch slots into which baseboards can be dropped (Photograph 1).

Upper 2-by-4 rails can now be nailed on top of posts. Joins should come on centers of alternate posts (Photograph 2). Now cut lower 2-by-4 rails and place in position on short pieces previously nailed at bottom of posts.

Nail directly through into these, also into edge of baseboards along

HAVE YOU a picket fence to build between you and your neighbor? And would you like something different from the usual arrangement of pickets on one side and 2-by-4 framework on the other? If so (and this also avoids any possible dispute as to whose side the pickets should be on), here is an attractive, easily built, "same-on-both-sides" fence.

The basic idea is to place the pickets on the center line of the supporting rail. In the fence shown in the illustrations, ordinary 1-by-6's spaced $3\frac{1}{4}$ inches apart are used with pleasing effect for pickets. Posts are of 4-by-4 cedar, creosoted on the lower ends; baseboards of 1-by-12 cedar, and rails of common 2-by-4's. Box shows how to avoid waste in selecting lumber for pickets.

Framework is built in conventional way except that width of "sections" (between posts) and number of pickets per section must be carefully worked out in advance.

Ten pickets per section, requiring posts to be centered 96 inches apart, give an excellent appearance. Other

Pickets per
Section

8
9
10
11
12

Distance between 4-by-4
post centers

78 $\frac{1}{4}$ "
87 $\frac{1}{8}$ "
96"
104 $\frac{7}{8}$ "
113 $\frac{3}{4}$ "

Figures are based on 1-by-6 pickets (mill-cut width 5 $\frac{5}{8}$ "), spaced $3\frac{1}{4}$ " apart.

To avoid waste use lumber that will cut into an exact number of pickets

Length of
Pickets

Use this length
lumber

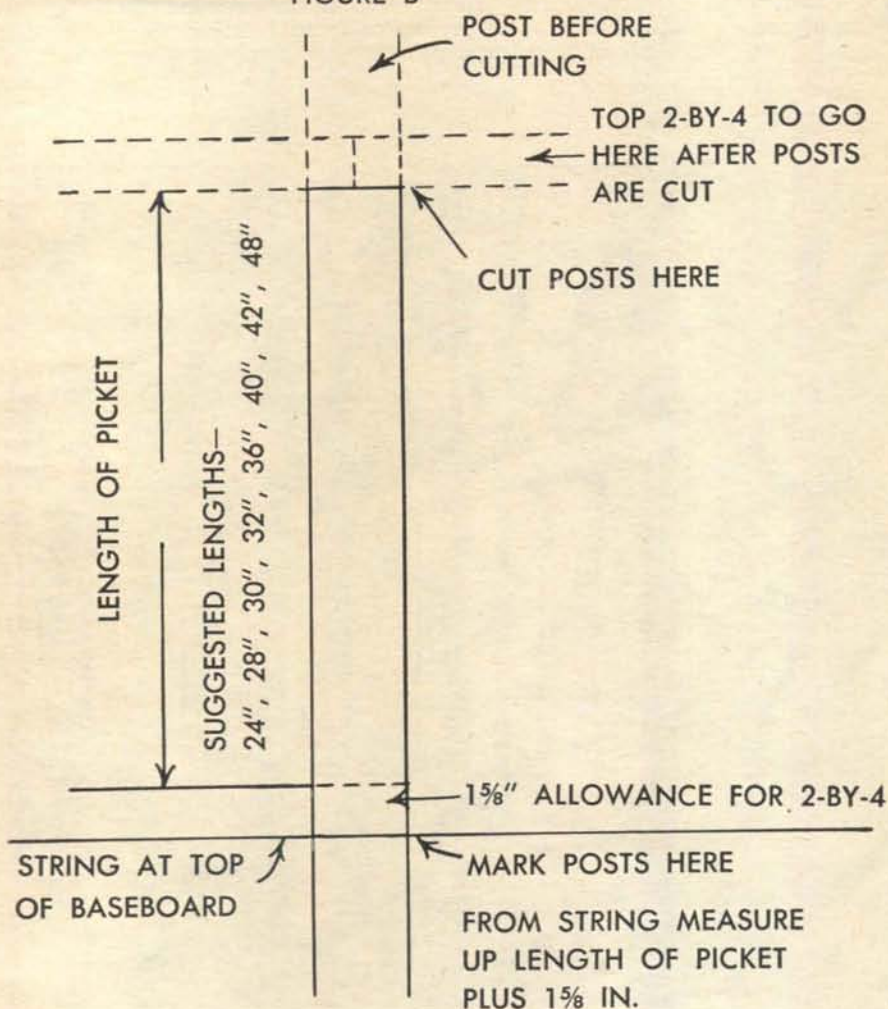
No. of pickets
per piece

24 in.
28 "
30 "
32 "
36 "
40 "
42 "
48 "

10 ft.
14 "
10 "
16 "
12 "
10 "
14 "
16 "

5
6
4
6
4
3
4
4

FIGURE B



METHOD OF LOCATING HEIGHT OF POSTS

center line of lower rail. By this arrangement the customary toenailing and its attendant troubles are avoided. Fence is also much stronger.

Next come the nailing strips (for the pickets) which can be any molding or edgings that can be picked up cheaply, not wider than 1 7/16 inches, or simply 1-by-3's ripped down the middle.

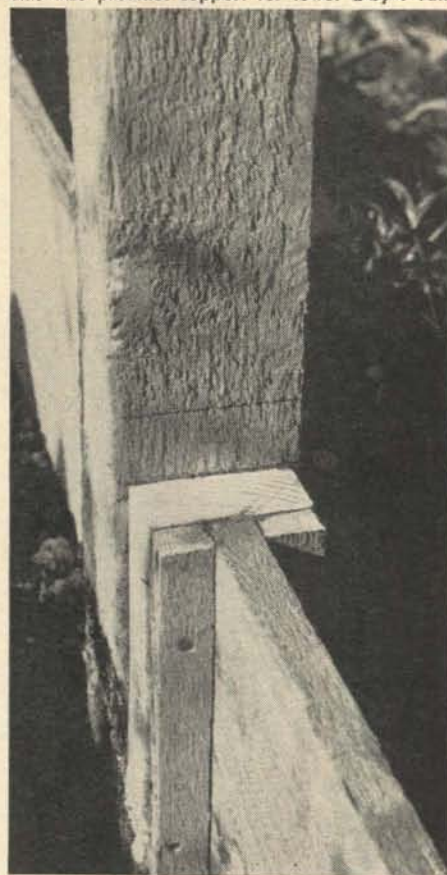
One strip is nailed along underside of top 2-by-4 and a similar strip along top of lower 2-by-4. If using pickets of standard 3/4-inch thickness, strips should be half of this (3/8 inch) from center line of 2-by-4 rails (Figure C).

Nailing pickets in place is next step. Find center of each section and work both ways to the posts. By this method slight inaccuracies of measurement are made unnoticeable.

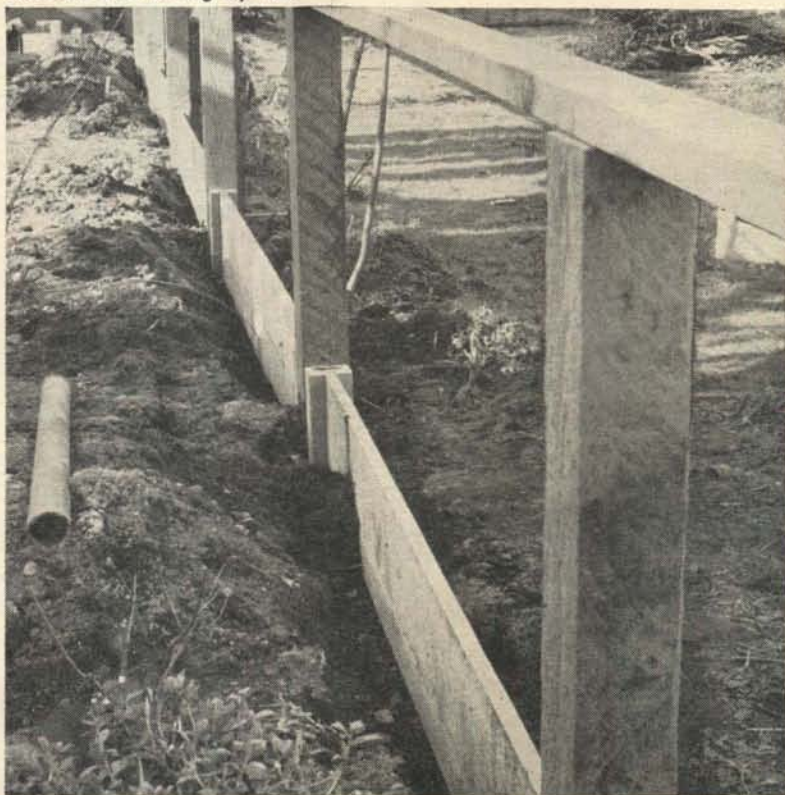
For an even number of pickets nail first picket half a space from center of section. For an odd number, center of first picket will be same as center of section. Be sure to use a plumb line to get first picket perfectly vertical.

Spaces needn't be marked off every time if a piece of lumber the width of one space is used as a guide. Place this against first picket, slide next one tightly against it and nail. Repeat all the way along.

PHOTOGRAPH 1—Method of securing baseboard. This also provides support for lower 2-by-4 rail.



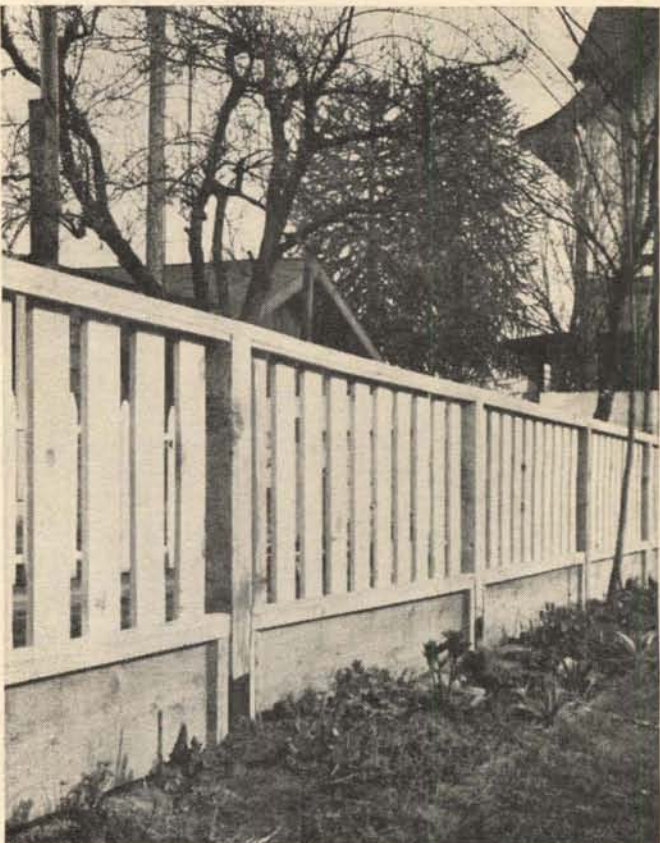
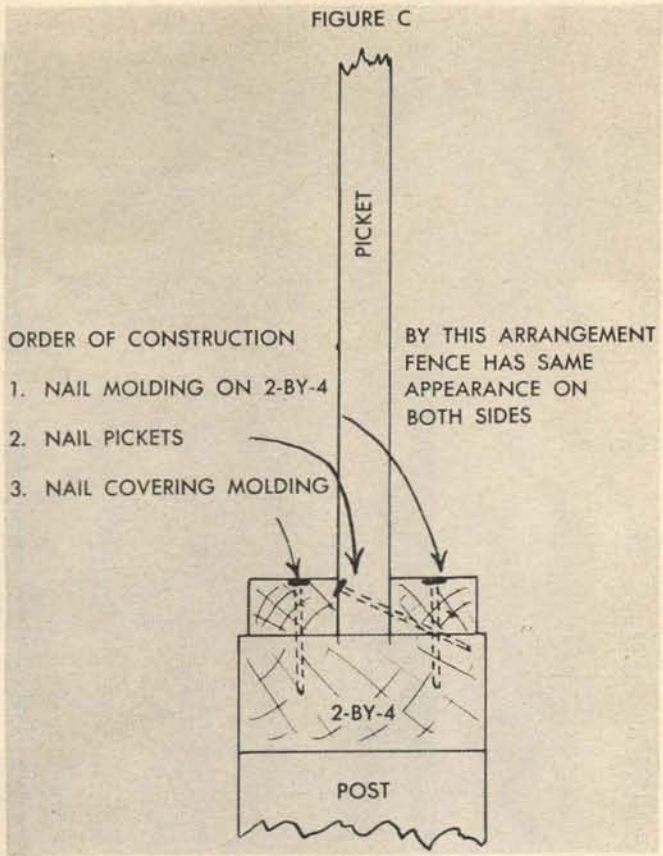
PHOTOGRAPH 2—Framework under construction. Slight misalignment of posts can be corrected when nailing top rail.



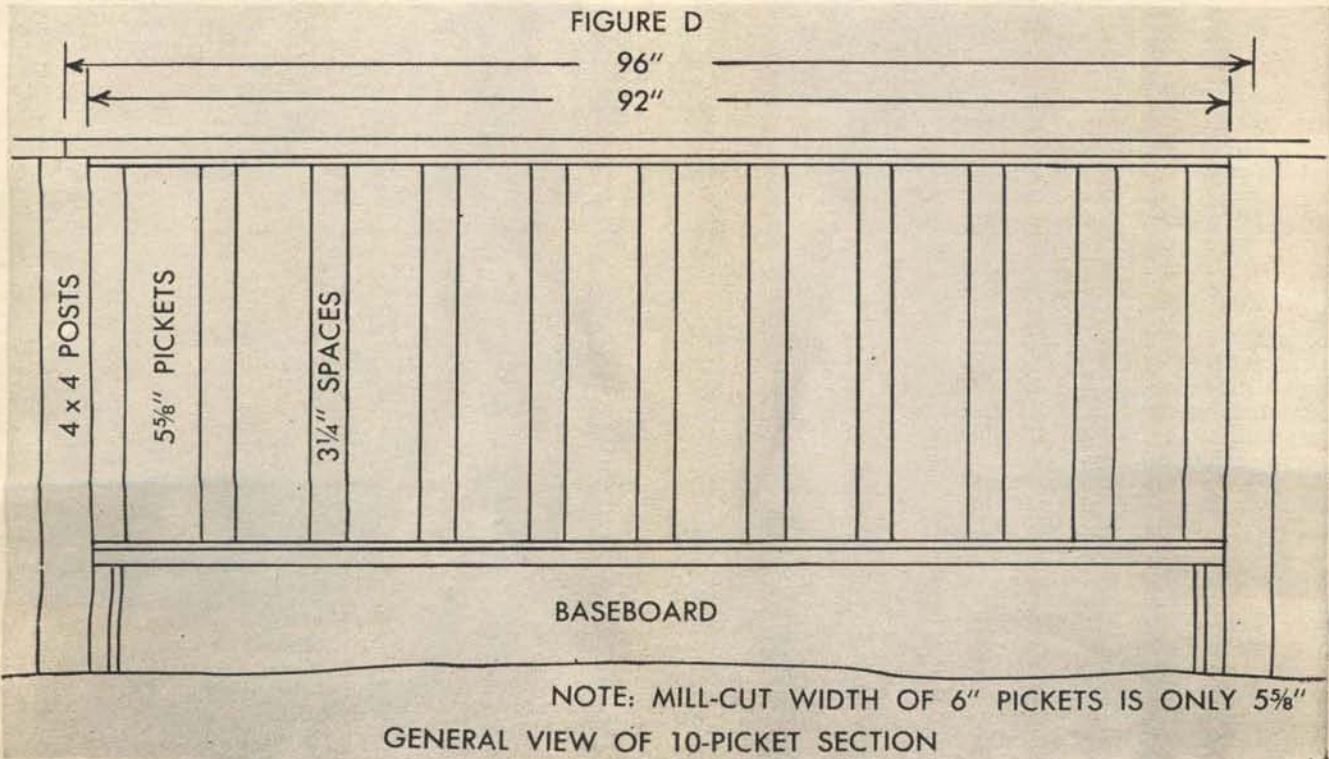
Finally nail strips of molding, identical to the first ones used, to the top and bottom rails. These will balance the appearance of the fence and also cover the nailheads in the pickets.

Fence is now ready for painting (Photograph 3). Use a top quality primer coat for best results. Resin in the lumber can be prevented from running by giving it a dab of aluminum paint before applying the primer.

THE END



PHOTOGRAPH 3—Fence completed and ready for primer coat of paint.



Steppingstones Cast in the Ground

DICK HUTCHINSON

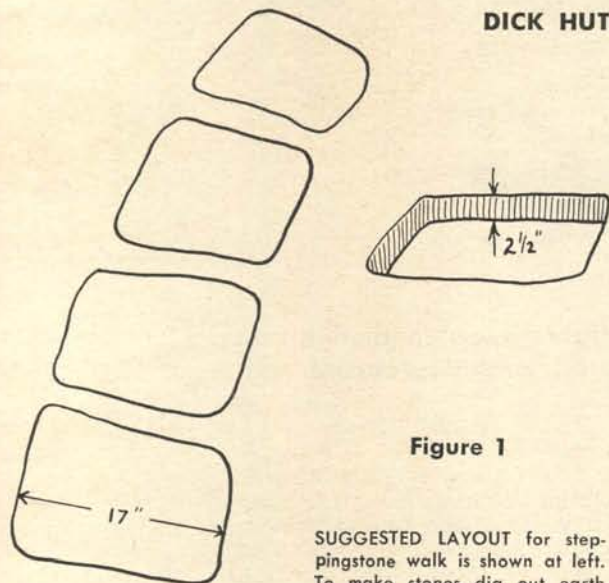


Figure 1

SUGGESTED LAYOUT for steppingstone walk is shown at left. To make stones dig out earth as shown at right, fill with cement mixture and trowel off with wooden float.

STEPPINGSTONE walks are popular, and are particularly effective when laid through plots of flowers where they add much to the landscaping. Most of the steppingstones used today are of the precast variety and require some effort to lay attractively and successfully, as they do not always conform to an irregular contour.

With the stone walks illustrated here, however, no forms are required, as they are cast right in the ground, which results in a much more attractive walk, with even less work.

Stones put down this way are solid and they need no footing or foundation as in parts of the country where frost heaves the ground, there is nothing to worry about for, if the frost raises them in winter, they settle back in position when the frost leaves the ground in spring. Anyone can easily lay this type of walk.

Simply lay out on the ground approximately where the walk is to be. See drawing. Then, using a round pointed shovel, cut out of the ground in irregular design a form for each steppingstone (Figure 1). Cut the sides as straight down as possible,

to a depth of about $2\frac{1}{2}$ ", and clean out, leaving 2" to 3" between each of the forms for grass.

Mix a batch of three parts sand, to one part Portland cement. Add water and mix thoroughly, then fill each of the holes with the cement and trowel off evenly with a wood float. When cement has set, sow lawn grass seed between the stones and you will have a walk like the one shown that hasn't cost you as much as would precast stones alone. The use of the wood float in surfacing the stones leaves a much more attractive surface, and the stones will never become slippery in wet weather.

If a walk in colors is desired, fill each of the holes, or molds up to within about $\frac{3}{4}$ " of the top with the plain cement, then mix another smaller batch of the cement in the same proportions as the first, and while dry, mix in a dry mineral color—iron oxide for red—or any other color. The depth of color is determined by the amount of color added. Mix with water, then, while the bottom layer of cement is still wet, fill each of the forms full of the colored material and trowel off with the float. Result, a walk in color.

THE END



FORMS $2\frac{1}{2}$ " DEEP are dug out to receive the concrete mixture. Space between is left for grass.

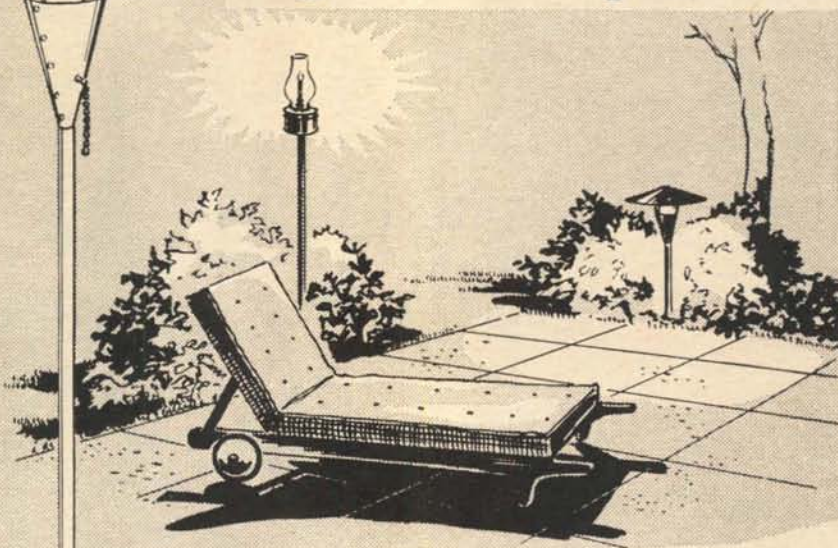
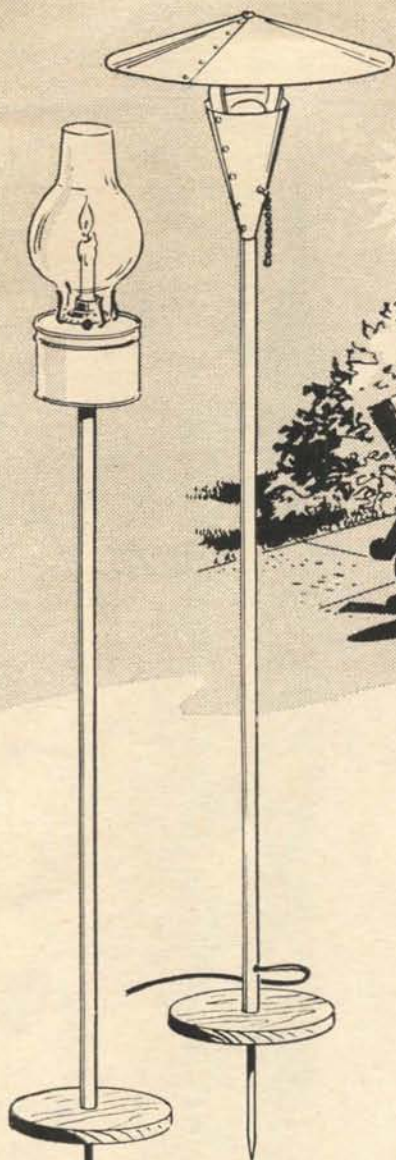


THE STEPPINGSTONES are laid by filling the dug-out forms, then troweling down with a wood float.



THE COMPLETED steppingstone walk leading along side of house, to birdbath and bird feeding shelter.

Lights for your Patio

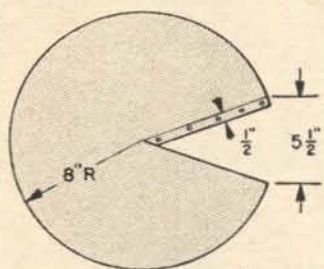


Prefer electric lighting or candlelight on your patio? You can provide yourself with either, or both.

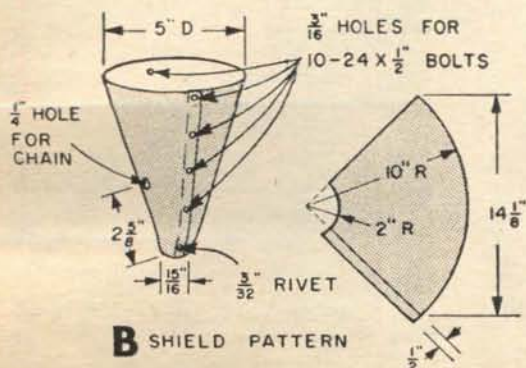
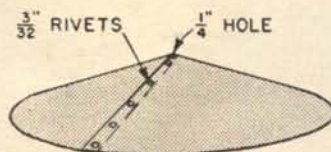
LIGHT YOUR patio or yard for late evening use with several of these outdoor lighting fixtures. They are easy to make from Do-It-Yourself aluminum using regular woodworking tools. For bright modern lighting build electric fixtures. The candlelight fixtures add a touch of tradition to your patio.

Electric Light Construction

1. Use a compass to lay out the shade and shield on the sheet aluminum. Cut them to shape and rivet the larger one to form the shade cone. The shield is temporarily bolted together with 10-24 x 1/2" aluminum nuts and bolts except for the 3/32" rivet at the bottom.
2. Cut the 1/8" x 3/4" aluminum bar to length and bend it to form the shade bracket that fits inside of long cone. Drill hole for the threaded pipe.

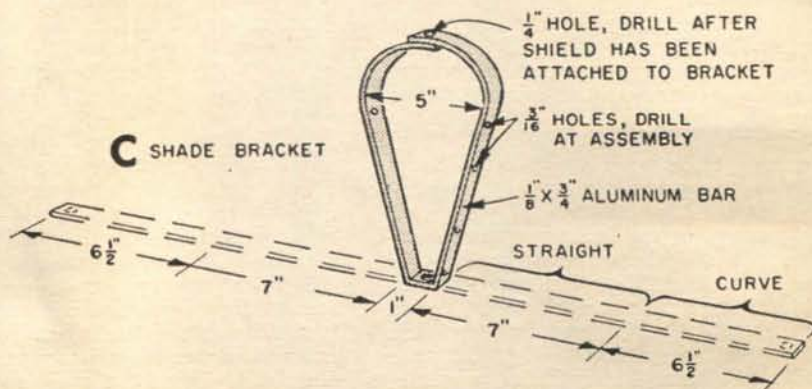


A SHADE PATTERN



B SHIELD PATTERN

C SHADE BRACKET



3. Drill a $\frac{3}{8}$ " hole through the center of a 3" length of wooden dowel for 4" length of $\frac{1}{8}$ " threaded pipe. Use a standard brass socket with a pull chain and be sure the pipe fits the end of the socket. Screw the pipe into the dowel and tightly fit the dowel in the upper end of the aluminum tube. Dimple tube with center punch or use brad to hold dowel in place.

4. Slip the long cone onto the 1" tube. Thread the electric wires into the pipe and tube and connect them to the socket. The shade bracket then fits over the threaded pipe and is held securely with a nut. Slide the shield up tightly against the shade bracket and drill the bracket for the 10-24 bolts, using the holes in the shield as a guide. Drill holes in top of bracket for $\frac{1}{4}$ " bolt. Next screw the socket onto the threaded pipe and slip the chain out through the hole in the side of the cone.

5. Insert the light bulb, line up the holes in the top of the shade bracket and attach the shade, using a $\frac{1}{4}$ " aluminum bolt and nut.

6. Attach the base to complete the fixture.

Candlelight Construction

1. For the outdoor candleholder cut a 2" length from the 1" aluminum tube and shape it as shown, using a woodworking coping saw. Drill a $\frac{1}{4}$ " hole in flap.

2. Remove wick sleeve and trim off the top of a kerosene lamp burner as shown. Fit the candleholder and lamp burner to the coffee can top and bolt all three together with $\frac{1}{4}$ "—20 x $1\frac{1}{2}$ " aluminum bolt and nut.

3. Insert the 1" aluminum floor flange in the top of the 1" tube and tighten bolt until the serrated nut grips the inside of the tube securely. Then bolt floor flange to the bottom of the coffee can.

4. If the coffee can top is loose, solder it to the bottom.

5. Attach the base.

6. Paint the coffee can and base black for sharp contrast against the aluminum. Insert the candle and chimney and it's ready for the yard.

Base Construction

1. Make the base by attaching a 1" floor flange to a $7\frac{1}{2}$ " wooden disk. Drill out the screw hole in the center of the floor flange to take a $\frac{3}{8}$ " aluminum rod.

2. Cut a piece of $\frac{3}{8}$ " aluminum rod 12" long. Point one end, using a heavy rasp or sander.

3. Assemble the base by inserting the rod into the floor flange, then the floor flange into the 1" aluminum tube. Drill a $\frac{1}{4}$ " hole through the tube, floor flange and rod. Bolt all 3 parts together, using a $\frac{1}{4}$ "—20 x $1\frac{1}{2}$ " aluminum bolt.

Materials List

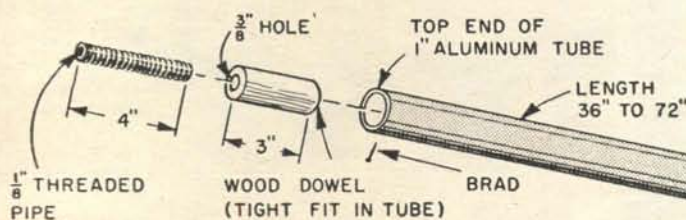
Electric Light and Base

- 1 pc. 3' x 3' leather embossed or plain aluminum sheet.
- 1 pc. 1" O.D. aluminum tubing, 6 feet long.
- 1 pc. $\frac{3}{8}$ " aluminum rod, 12" long.
- 6 $\frac{3}{32}$ " x $\frac{1}{4}$ " brazier head rivets.
- 1 1" aluminum flange.
- 2 $\frac{1}{4}$ "—20 x $1\frac{1}{2}$ " aluminum bolts and nuts.
- 4 No. 8— $\frac{3}{4}$ " f.h. aluminum wood screws.
- 1 Chain socket and cord with plug.
- 1 4" x $\frac{1}{8}$ " threaded pipe and nut.
- 1 3" long dowel (tight fit in 1" tube).
- 1 $\frac{3}{4}$ " x $7\frac{1}{2}$ " dia. wood disk.
- 5 10—24 x $\frac{1}{2}$ " aluminum bolts and nuts.

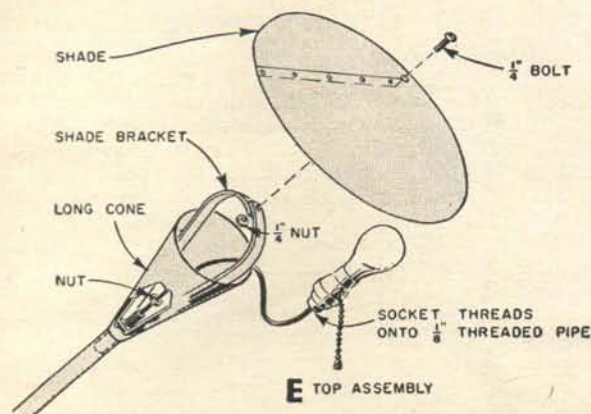
Candlelight and Base

- 1 pc. 1" O.D. aluminum tubing, 6 feet long.
- 1 pc. $\frac{3}{8}$ " aluminum rod, 12" long.
- 2 1" aluminum flanges.
- 4 No. 8— $\frac{3}{4}$ " f.h. aluminum wood screws.
- 4 10—24 x $\frac{1}{2}$ " aluminum bolts and nuts.
- 2 $\frac{1}{4}$ "—20 x $1\frac{1}{2}$ " aluminum bolts and nuts.
- 1 Lamp burner from kerosene lantern and chimney.
- 1 $\frac{3}{4}$ " x $7\frac{1}{2}$ " dia. wood disk.
- 1 Coffee can.

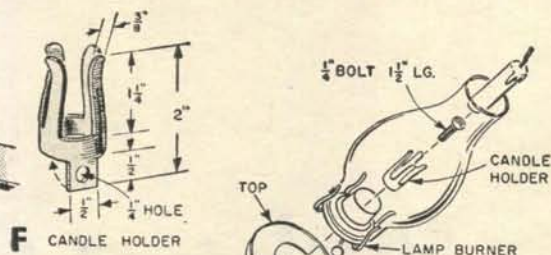
THE END



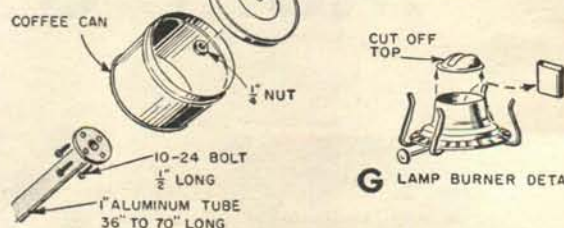
D DOWEL DETAILS



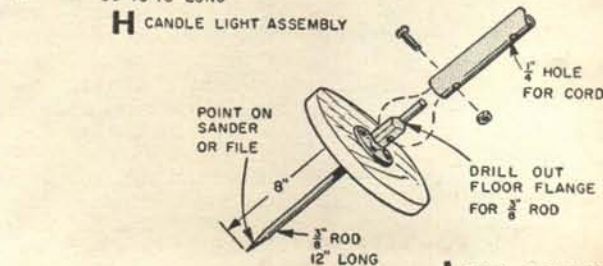
E TOP ASSEMBLY



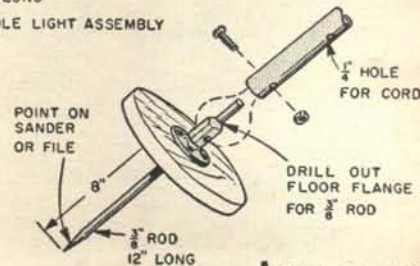
F CANDLE HOLDER



G LAMP BURNER DETAILS



H CANDLE LIGHT ASSEMBLY



J BASE ASSEMBLY



PHOTOGRAPH 1—If possible, the garden bench should be one of the first projects in your landscaping. Then you can plant to surround yourself with serenity.

PHOTOGRAPH 2—Make the header as a subassembly. Dimensions and shape are not critical and can be modified to suit any area.

Any yard or garden will gain by the addition of this wooden bench.



Make a Garden Bench

R. J. DE CRISTOFORO

A WELL-SITUATED bench (Photograph 1) should be an essential in anyone's landscaping plan. Hammocks and lounges may be great for sprawling and stretched-out relaxation, but for real enjoyment of your green-thumb efforts you need a place where you can just sit and look; off the routine-road and with disturbing headlines replaced by bursting buds and sprawling greenery. If you can place it so a tree spreads out, or will grow to spread out, over it, so much the better.

Redwood is the ideal material for this project since it will last indefinitely even when in direct contact with the soil, but you can use other woods if you treat soil-contact areas with a good wood preservative. We used a common grade of 2x6 T&G board with chamfered edges

because it created lines to break up large surfaces, but type of material is fairly flexible. In fact, except for the headers (Photograph 2), there is no reason why you couldn't use a good grade of outdoor plywood. If thinner material than that suggested is used, be sure to modify dimensions when necessary.

Make parts 1, 2 and 3 first joining at a right angle where part 1 joins part 2 and where part 2 joins part 3. The ends of part 4 are dressed to fit on assembly. Attach the stakes now driving nails through them into the headers. Also drive nails through the headers into the stakes at the four corners to reinforce the joint.

THE BENCH pedestals (Photograph 3) are merely narrow

boxes which are produced as a subassembly. Make the sides first of narrow boards joined with cleats. Note that the thickness of the cleat is just enough to span the gap between sides, so nails from opposite sides should be staggered. Add parts 6.

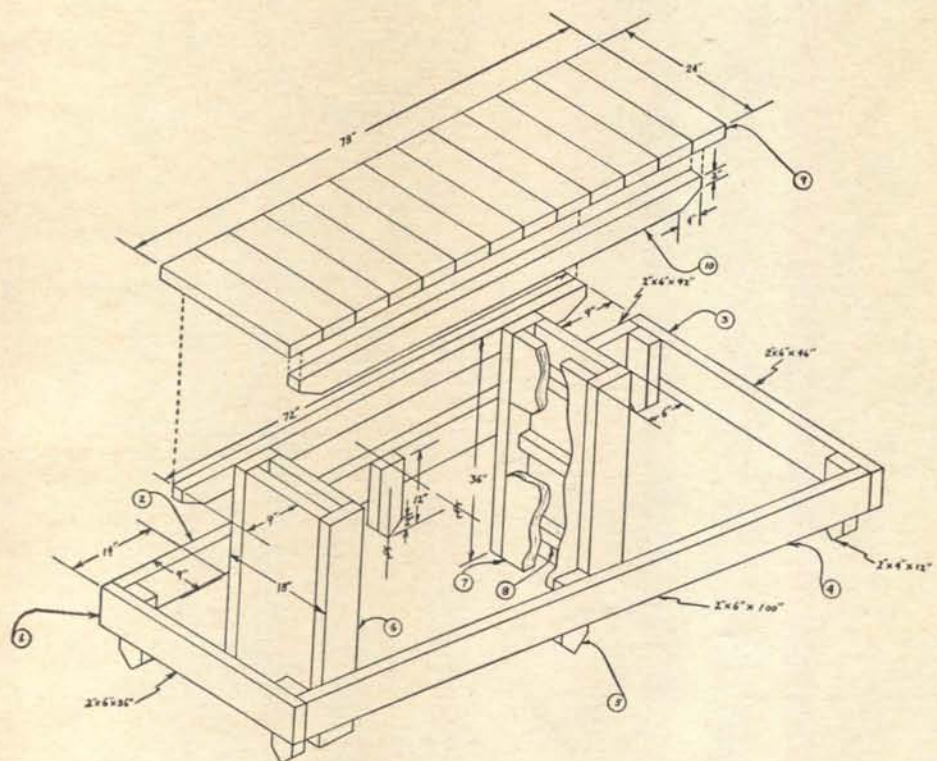
The bench top (Photograph 4) is another subassembly, being narrow boards surface-nailed into the two supports. Place these supports carefully so the bench top will just straddle the pedestals.

Place the header form and then dig a similar outline in the soil so the top of the header will be about 3" above grade. The header stakes can be set in soil only, or you can place a small amount of concrete around each for further stability.

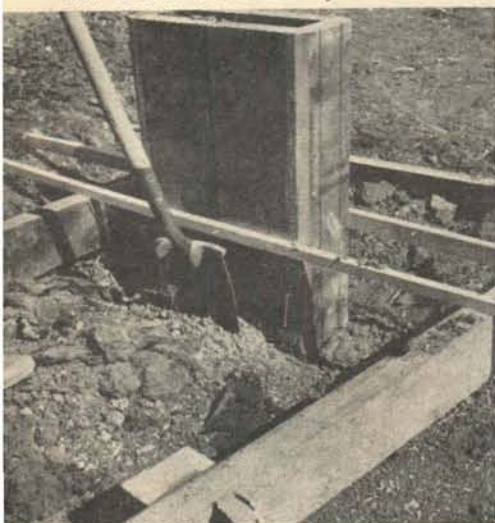
Dig holes for the pedestals and then use temporary supports that will span across the headers to locate and support the pedestals until they are solidly set. Mix the concrete and shovel it around the base of each. Let the concrete set at least twenty-four hours before going farther.

Soil in the header form should be removed to a depth of about 4" so it can be filled with stone or beach pebbles or aggregate (Photograph 5). Treatment here is flexible; you could even fill to the header tops with concrete or even sand. Last step is to set bench top in place and nail it down into the pedestals.

Edges of the bench top and of the pedestals can be left square or you can chamfer them as we did.



PHOTOGRAPH 3—After the header is in place, dig holes for the pedestals. Temporary supports hold and locate them. Pour concrete mix around the base of each and work with shovel to settle it firmly. Use a level to check placement of header form and of pedestals. A slight forward or backward pitch on pedestals will allow rain water to flow off. Remove temporary supports after concrete sets sufficiently.



PHOTOGRAPH 4—Cut bench top boards and then surface-nail them to supports. Measure carefully here, so bench-top assembly will just straddle the pedestals. A few nails through top into each pedestal will secure attachment.



Materials Needed

Part No.	No. of Pieces	Size
1	1	2" x 6" x 36"
2	1	2" x 6" x 92"
3	1	2" x 6" x 46"
*4	1	2" x 6" x 100"
5	6	2" x 4" x 12"
6	4	2" x 6" x 36"
**7	4	2" x 14" x 36"
8	6	2" x 2" x 14"
9	13	2" x 6" x 24"
10	2	2" x 4" x 72"

2 bags of prepared concrete mix
30d, galvanized, common nails

* length given is slightly oversize so ends may be trimmed to fit on assembly.

** Make up width (14") by joining narrower boards together with cleats (part 8).

THE END

PHOTOGRAPH 5—Header fill can be placed before concrete is set. Use large stones, smooth beach pebbles, gravel or even concrete, if you prefer.



Monkey Bars for Children at Play

ADJUSTABLE-HEIGHT monkey bars for the back yard playground can be raised as the youngsters grow and thus provide several years of fun and exercise.

The horizontal ladder top is made of straight-grained 2-by-4-inch lumber and 1 1/4-inch flagpole stock. Round the ends of each 2-by-4, and,

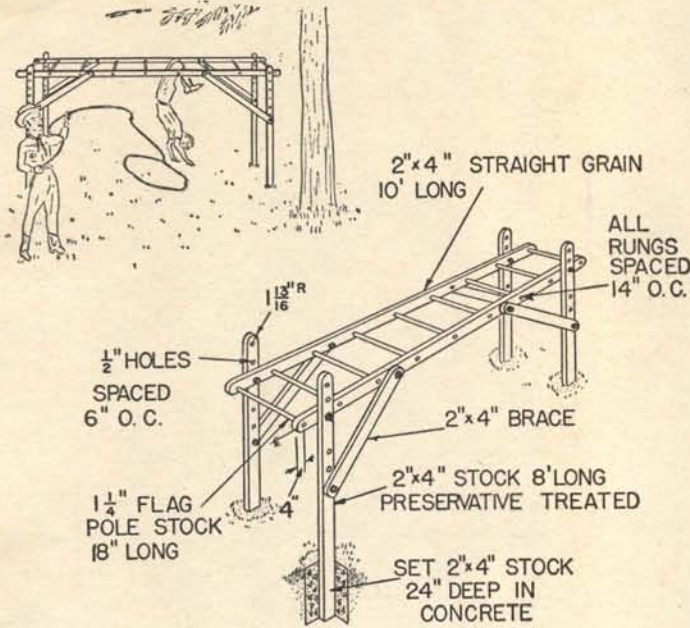
starting 4 inches from an end, bore 1 1/4-inch holes, 14 inches apart on centers, to accommodate the rungs. Glue the rungs in place, with waterproof glue, and pin each rung with an 8-penny finishing nail. Sink the head of the nail beneath the surface of the rail. Then bore 1/2-inch holes in the rails, 11 inches from each

end and 39 inches from each end.

Make the posts of 2-by-4-inch lumber, each 8 feet long. Round the top of the post, and starting 1 13/16 inches from the top bore three 1/2-inch holes in the center line, spaced 6 inches apart on centers. The space between the third and fourth hole is 1 foot, center to center; then bore two more with 6-inch spacing.

Set the posts in place, with 2 feet beneath the ground surface, adjusting as necessary if the ground slopes a bit so that the tops of the posts are all in the same plane. Assemble the entire unit, except for the braces, before the concrete sets, being sure that the posts are plumb. Then extend a trial piece of 2-by-4-inch lumber in brace position and mark off the required length for each brace.

Draw up all bolts tightly, using lock washers. Sand the entire project, and round all sharp edges. As with other ladders, do not paint; the unit may be protected from weather with a clear outside varnish or an oil treatment. Do not hurry the use of the unit; make sure the concrete has thoroughly set, or use may pull it out of line. Plans for these monkey bars were prepared by the National Lumber Manufacturers Association.



Make your Croquet

WALTER G. YOUNG



CROQUET, LIKE any game, is at its best when the playing field is laid out accurately. Unfortunately it isn't practical to leave the stakes and arches permanently stuck in the lawn, or to get out the tape every time you play. Here, however, is a simple way to have a perfect playing area always ready.

(No dimensions will be given, because they depend greatly upon the space available; the main thing is that the proportions be correct. Check your set instructions for suggested distances.)

First, measure carefully and determine the four spots for corner markers, making sure the area is squared up. Your croquet set probably doesn't have corner markers, but a two-foot length of half-inch dowel will do nicely for each, topped

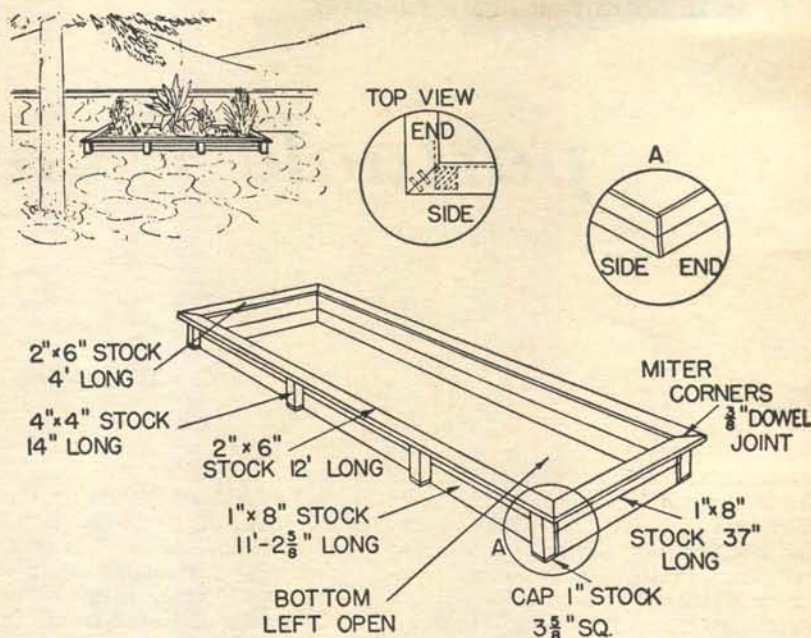
Patio Planter for Potted Plants

POTTED PLANTS can add beauty to an outdoor living area just as they do to interiors. They are particularly effective when massed at ground level. This patio planter will make such a massed display possible and at the same time will protect the plants from romping children and dogs. The open bottom allows for drainage.

First make the legs, which are 14-inch lengths of 4-by-4-inch lumber, covered on the lower ends with a square of 1-inch lumber.

The sides and ends are made of 1-by-8-inch lumber, the sides being 11 feet 2 9/16 inches long, and the ends 37 inches long. These are butt joined, as shown in the detail drawing, using 6-penny finishing nails.

Then add the legs, one at each end and two spaced evenly in between. Fasten the legs from the inside of the planter, using 3-inch No. 6, flat-



head wood screws, two in each board.

The sill around the top of the planter is made of two 12-foot lengths of 2-by-6-inch lumber, and two 4-foot lengths, with mitered corners joined with 3/8-inch dowel. Fasten the mitered sill to the top of

the legs with 3 1/2-inch No. 9 flathead wood screws, countersunk.

The planter may be finished by painting to harmonize with walls or fence colors, or may be given an oil or varnish treatment. The National Lumber Manufacturers Association prepared the plans for this planter.

Court Permanent

perhaps with a knob or small flag.

To make it easier, trim the grass closely a few inches around each spot; then tap into the ground the open end of a frozen juice can, with the marker's spot its center. Remove the can and the plug of soil will come with it. For best results you should then undercut the bottom of the hole; a dessert spoon is a good tool for this, if your wife isn't looking. When finished the hole should be bottle-shaped, and four or five inches deep.

Fill the hole with concrete mix and smooth it off at ground level. Set the marker in with a twisting motion, making sure it is perfectly plumb and bracing it so it will stay that way until the concrete hardens. When this happens, another careful twisting motion will remove it without in-

juring the concrete; you will have a permanent, well anchored home for the marker.

Set the end stakes in the same way, and wait until everything hardens. Then with the markers and stakes firmly in place, you will be able to attach to them whatever string lines are needed for guides in placing the arches, which will also be set in concrete.

The arches, of course, will require two holes each. As they will not come out easily when the concrete has set, insert a few inches of each leg into a tight-fitting drinking straw; mark a spot on each straw, perhaps two inches from the bottom, as a depth guide. After the concrete has hardened and the arches are removed, the straws can be trimmed flush with the top.

Giving each arch a coat of fluorescent paint will make it more easily seen and help avoid stubbed toes. The corner markers form the boundary, and all balls hit beyond it are brought back in. You'll be surprised how this will save your flowers—there is no point in hitting a ball into the roses if it's going to be returned to the boundary for playing.

Now, with your "official" court permanently marked, all that's necessary is to drop the stakes and arches into their spots whenever you're ready for a game. The concrete plugs won't interfere with mowing and won't ordinarily be noticed, but by knowing each one's approximate location you'll have no trouble finding them when you want to play.

THE END

This five-piece picnic or camping outfit folds up to be carried like a suitcase.

portable Picnic Table and seats

C. JOE THOMAS

THE PICNICKER and camper frequently feel the need for a portable kit of table and stools, for outdoor use. Such a kit, easily made by the home craftsman, will be a welcome convenience when eating out-of-doors. It consists of a table and four stools that fold and fit into a single unit. It may be carried, like a suitcase,

and transported in a car or boat.

Figure 1 shows one of the stools in an inverted position. It consists of four parts—A, B, C and D, all cut from $\frac{3}{8}$ " plywood. A strip of $\frac{3}{8}$ " plywood, 1" wide, is glued and nailed to the top of B, the front. Two hinges are screwed into this strip and riveted to A, the top. C is then hinged,

with two similar hinges, to B by means of rivets. These hinges are mortised into both pieces, so that when C is folded onto B, it will not protrude beyond the thickness of the strip. A then folds onto C and the latch, D, turned at right angles to B, falls into the space beside C. The latch, which holds C at right angles to B, when in use, is cut from $\frac{3}{8}$ " plywood and fastened to A with one screw.

The three feet of each stool are tipped with sheet metal, folded up an inch or so on each side and fastened with brass escutcheon pins. This is to prevent splintering of the plywood on rough ground and rocks.

THE TABLE is constructed in two halves, hinged together as shown in Figure 2, with four hinges. Each half consists of a frame of 1"-by-2½" stock, to which is fastened a sheet of $\frac{1}{4}$ " plywood. All joints are glued and nailed with finish nails and wire brads. Metal corners are screwed to the eight outside corners, for their protection.

The legs are made of 1"-x-1¼" hardwood, assembled to fold inside as shown in Figure 2. The legs turn on carriage bolts that extend through the sides, blocks and legs, with thumb nuts on the inside. When in use, the legs are fastened in place by screen door hooks, screwed into the outside of the table. The hooks fit into screw eyes in the legs. Screw eyes are also placed on the outside of the table, opposite these hooks, to hold the halves together when closed. Canvas straps are riveted in the center of the top of each half, to serve as carrying handles.

Photograph A shows the table opened, with folded stools in place, ready to open for use or close for carrying. As the photograph shows, there is ample space for picnic accessories, such as paper plates, cups, napkins, etc. Photograph B shows each part open and in position for use.

THE TABLE and stools are sanded to desired smoothness and given a coat of thinned white shellac—one part

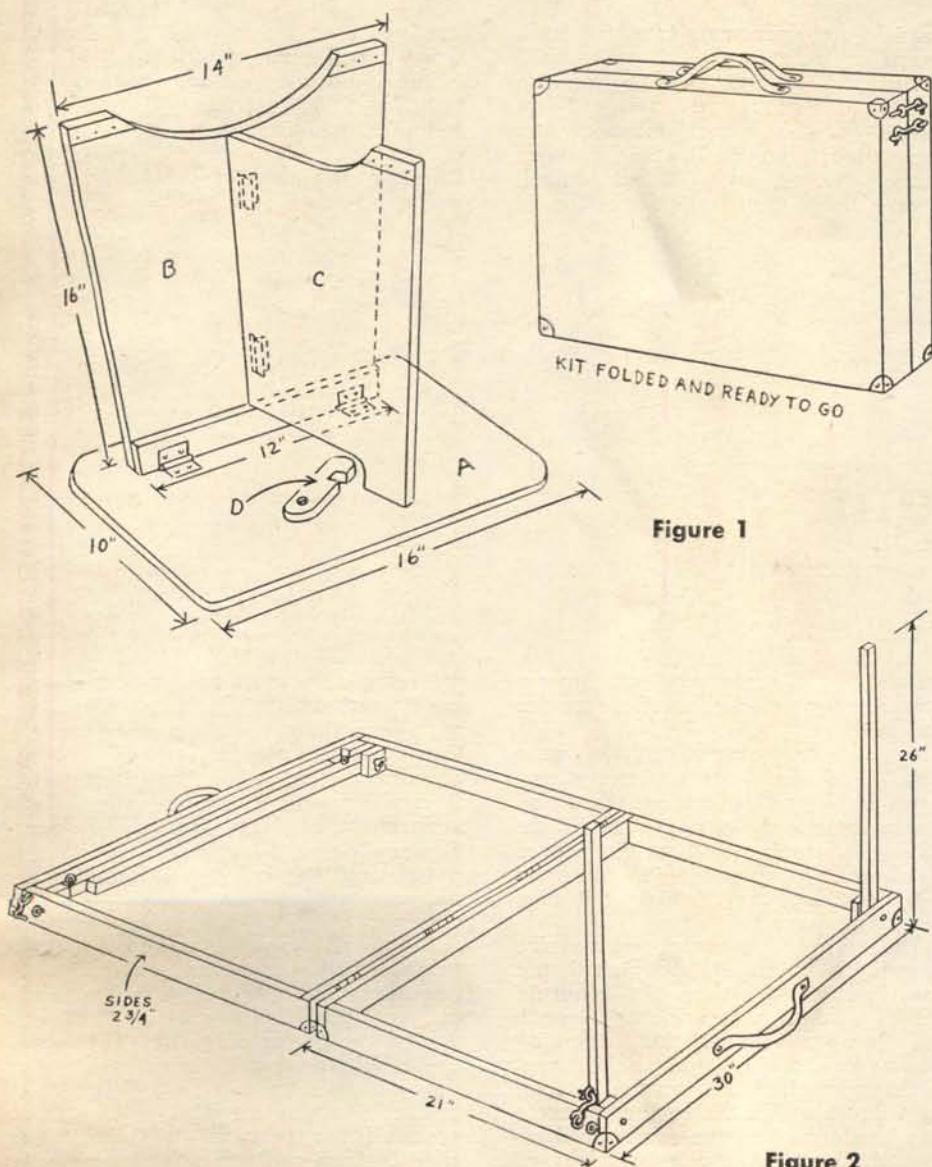
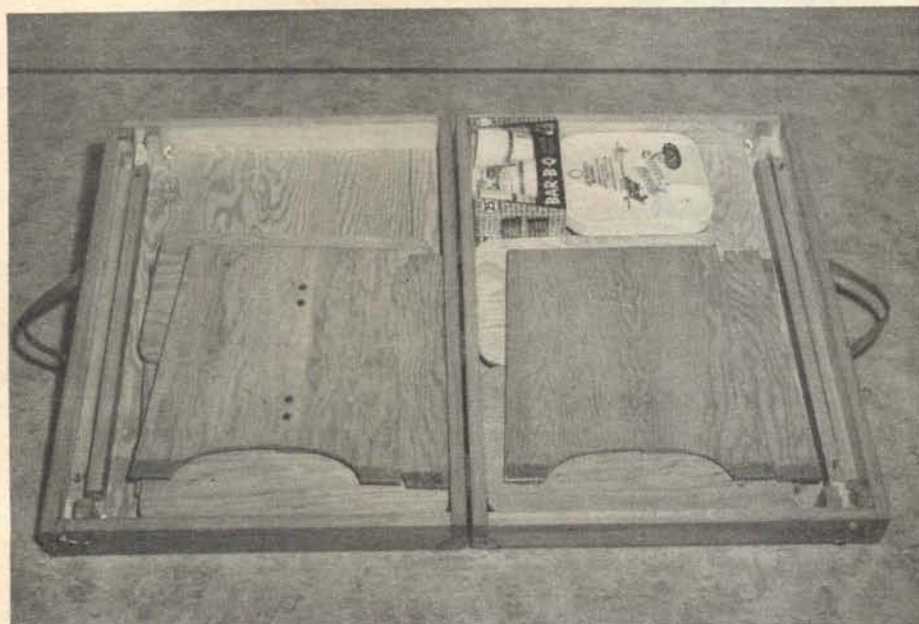


Figure 1

Figure 2

shellac thinner to three parts shellac. Allow to dry overnight and sand with fine sandpaper. Follow with two coats of good exterior spar varnish, allowing the first coat to become thoroughly dry before applying the second. This produces a natural color, but if a darker color is desired, a coat of stain is applied after the first sanding, just before the application of the shellac.

The outfit will also be found useful for patio and back yard cook-outs, where permanent equipment is not available or extra facilities are needed. The stools serve nicely, when placed near the cooking fire, as stands on which to place cooking materials and tools. Some rugged outdoorsmen may frown upon such luxury equipment, but watch them use it when it is available.



PHOTOGRAPH A—Table and stools ready to set up and use, or close and carry.



PHOTOGRAPH B—The table and stools unfolded and set up for use.

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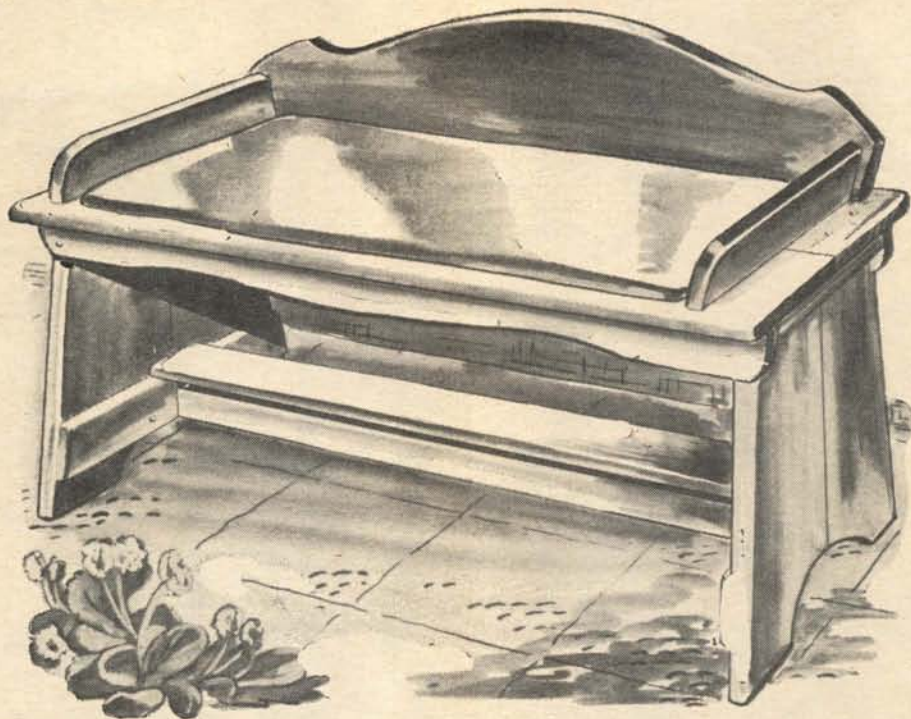
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GARDEN BENCH finished and fitted with a tailored pad to add extra comfort.



Wagon-Seat Bench for the outdoor living room

ROBERTA L. FAIRALL

HERE is a garden bench that's a little different. Graceful lines and sturdy construction suggested by the old-time wagon seat make it a natural companion to the out-of-

doors. Simplicity of design and the use of stock-size lumber make it easy for the average home workshoper to build.

Select surfaced heart (red colored) redwood for best resistance to weather. Then, begin the project with your pencil; first carefully laying out full-scale patterns (Figures 1-2) on white shelf or wrapping paper. Let these patterns serve as trace-around guides for curved outlines, as a check on angles and for continued reference for positions of joining members. Next, after cutting pieces and dressing to exact dimensions, lay out for assembly, locate positions of screws and drill shank holes $11/64$ -inch diameter for No. 8 wood screws. Begin construction (Figure 3) by assembling stretcher unit A-B-C, drawing the side stretchers B to ends of cross stretcher A with countersunk 2-inch flathead screws, and positioning the upper cross stretcher with 2-inch roundhead brass screws. Follow by edge gluing legs D and mounting cleats E. Join $2\frac{1}{2}$ -inch angle irons to E flush at the tops. Assemble stretcher and leg units by turning screws through side stretchers B into legs. Fit rails F in mortises cut for them at the tops of legs. Glue up seat boards G and mount cleats H flush at ends. Assemble back and arms I-J. Mount this unit to the seat by turning screws through from underneath. Join seat and leg units.

To make a cushion, cut two pieces of water-repellent duck or plastic-coated drill the required size allowing $\frac{3}{8}$ inch on all sides for seams. Machine stitch, leaving one end open. Slip in a separate pad made of ticking stuffed with kapok and tacked through at intervals to keep from lumping. Close the end opening by hand sewing.

Redwood requires no finish as a preservative. It may be left to weather first to a dark red, then gray blending naturally with its alfresco environment.

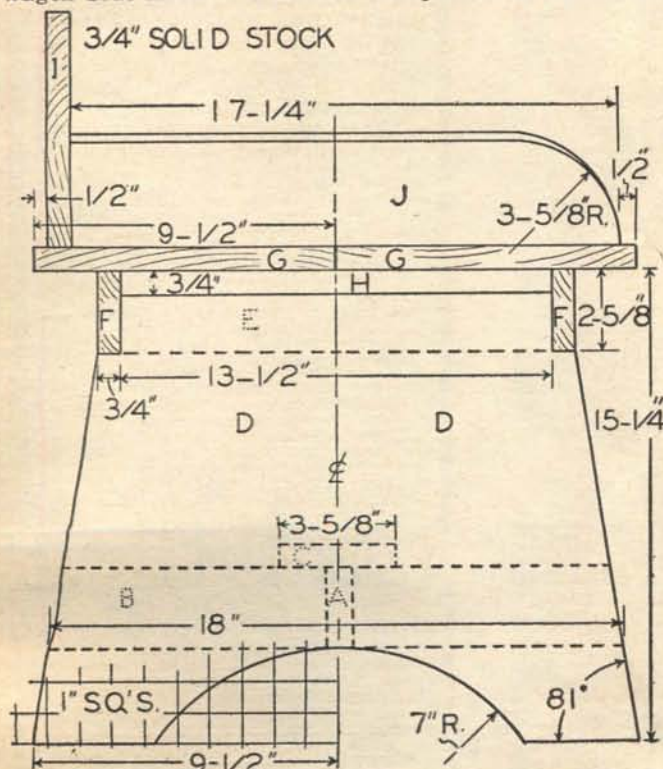


FIGURE 1—Side view plan and dimensions for bench.

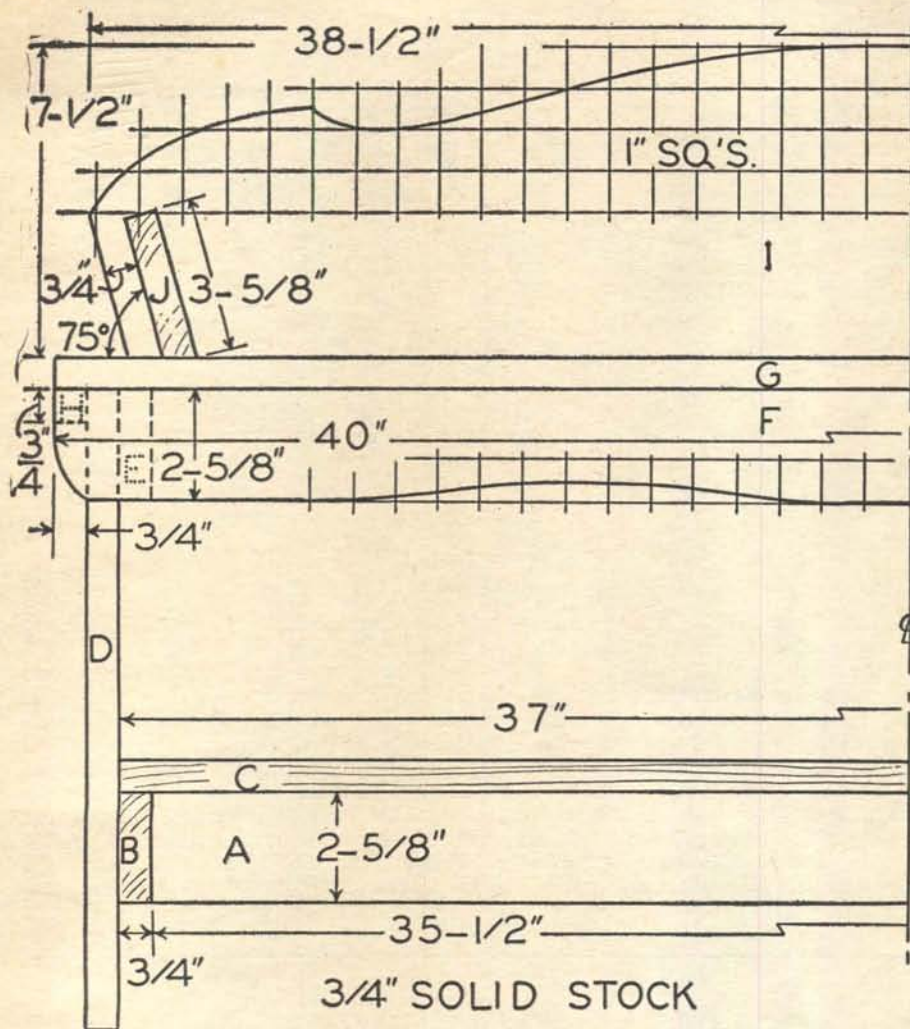


FIGURE 2—Front view plan and dimensions for bench. See Page 62 for directions on How to enlarge Squared Patterns and Designs.

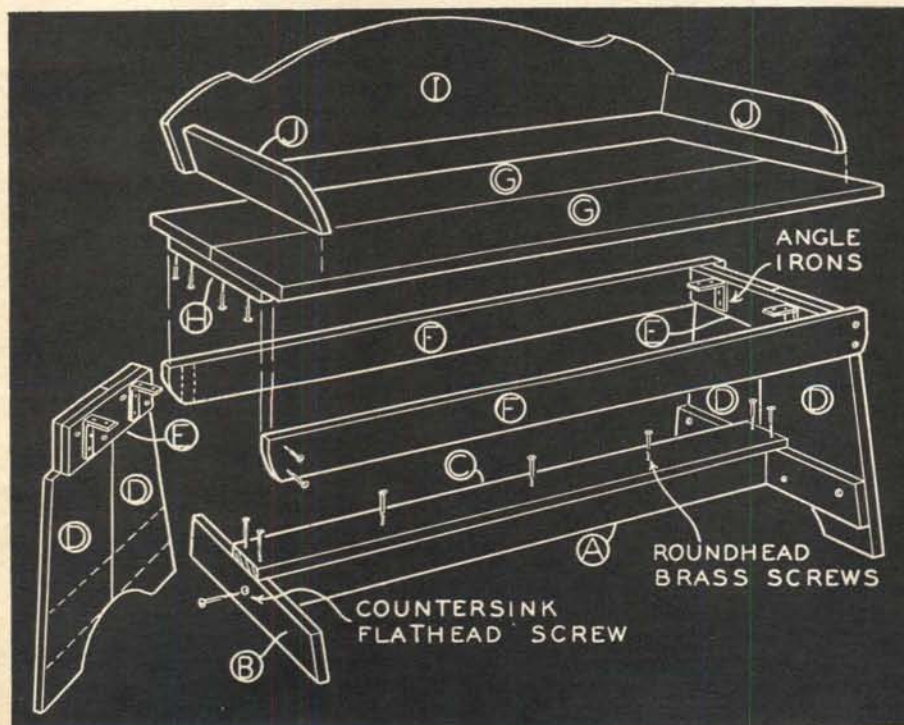


FIGURE 3—Assembling the parts.

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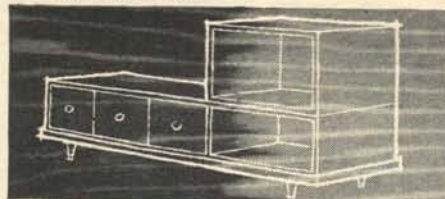
3 EASY
STEPS
WITH



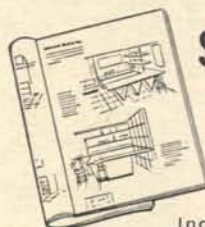
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Lattice Screens Afford Outdoor Privacy

EVEN THOUGH you may be fond of your neighbors, there are occasions when you seek some privacy as you enjoy cooling breezes or bask in the sun. Lattice screens are a good answer to this quest since they permit air circulation but at the same time provide a shield. They are decorative, too.

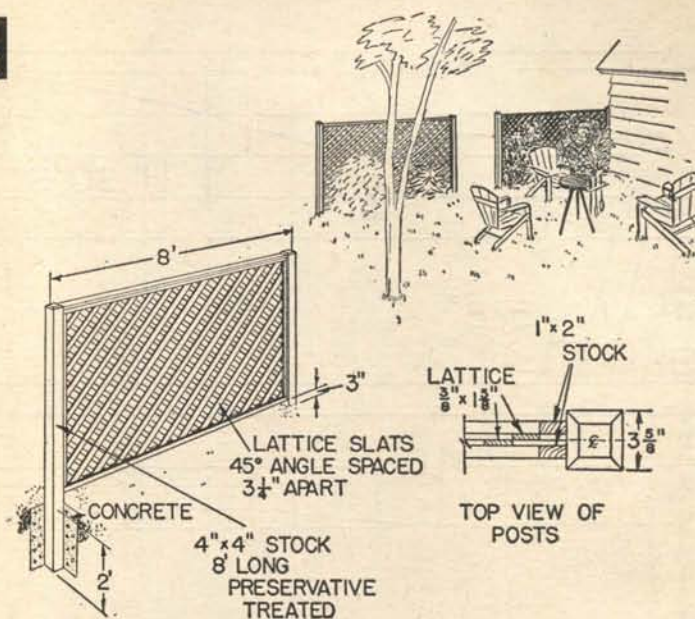
The screening may be placed as a fence or as smaller lawn dividers. Individual spans between supporting posts should not be longer than 8 feet.

The posts are 4-by-4-inch lumber, 8 feet long, 2 feet of which is set in concrete. If the posts are tamped into the ground without concrete, the below surface length should be 3 feet. Roof the tops of the posts, with a $\frac{1}{2}$ to $\frac{3}{4}$ -inch 45-degree bevel, and round the sharp edges with a rasp.

Use 1-by-2-inch lumber to frame the screen. Nail the vertical 1-by-2-inch frame members to the posts with 12-penny finishing nails. The

horizontal 1-by-2-inch frame members are nailed to the vertical ones and toenailed to the posts with 10-penny finishing nails.

Use finished lath for the lattice work, or with a bandsaw resaw 1-by-2-inch stock to produce the lattice. The ends of each lattice piece are cut at a 45-degree angle and are set between the framing members, as shown. Nail the lattice to the framing members with 6-penny finishing nails.



Space the lattice members $3\frac{1}{4}$ inches apart.

The lower end of the lattice screen is left open so rain will drain out; but the top is capped with 1-by-4-inch lumber, nailed to the frame member.

The finished lattice screen may be spray painted with white or green, or with outside varnish. Plans for these screens were prepared by the National Lumber Manufacturers Association. THE END

Push-A-Button Outdoor Chore Easers

HOMEOWNERS seeking a fast, relatively effortless solution to home maintenance jobs can find many a work-saver among this year's aerosol products.

Bringing push-button convenience to many household chores, the time-saving aerosol aids run from touch-up paints, lubricants and grease removers, to the latest insect-killing formulations to assure healthy, top quality gardens, lawns and shrubbery. Every one of the dozens of pressurized products is keyed to creation of more leisure time by doing the job effectively, with a minimum of messy preparation.

Take painting of rustic or wrought iron garden furniture, for example. Anyone who's hesitated to start the job because he finds the paintbrushes are dried out and hard, or the paint congealed after a winter of storage, will like the ready-to-use-immediately feature of aerosol paint. And when he finds how much easier it is to spray-paint intricate metal or wicker furniture instead of "bristling" the paint into those hard-to-get-at surfaces, he'll appreciate push-button virtues even more.

The aerosol paints and rust-proofing coatings are ideal for the small,

irregularly shaped surface and, properly applied, they'll give a smoother, more complete coverage than the average amateur can attain with a brush, and with a significant saving in time and temper. But, unless money is no concern, don't use them for large, flat surfaces, for there the traditional brush or roller will do the job more economically.

Lawn mowers and other garden implements that pick up a fine coating of rust and hardened grease over the winter can be spruced up quickly with aerosol grease removers and touch-up paints. Aerosol lubricants, ranging from light rust-cutting oils to the heavier types for general lubrication of moving parts, will help give equipment a spinning, purring start. There's even an aerosol answer, in waterproofing sprays, to lawn mower ignition problems in damp weather.

Aside from maintenance items, dozens of aerosol insecticides, fungicides, and weed killing chemicals are available to make plant and lawn care a little easier and outdoor living more enjoyable. Almost any chemical the homeowner likes to use against flies, mosquitoes, ants, roaches and other indoor-outdoor pests can be

found in aerosol packages that require only the press of a finger to dispense a bug-killing spray.

Specialized products for protecting roses and other flowers from both chewing and sucking insects, hormone blossom sprays that help assure "setting" of tomato plant blooms for bigger yields, insect repellents—all are available in push-button packages. Even the dog can have his day, for pet care aids in the handy aerosol packages include flea-killers, repellents, deodorants, mange treatments, dry bath preparations, and hair dressings that help assure shiny, healthy coats.

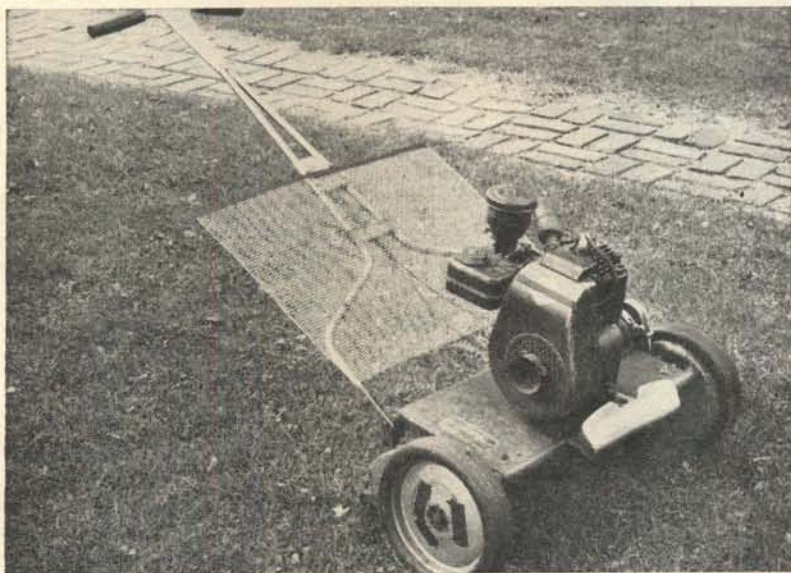
For those who get too close to nature there are aerosol poison ivy remedies, hand cleaners, and sunburn remedies that will take the sting out of parboiled skin with a soothing "no hands-touching" spray. There's even a spray-on bandage for protection of minor wounds.

Regardless of the type of product, the many different aerosol sprays have a common feature—clean, easy, effective application at the push of a button. Back of the "push" and providing the dispensing pressure in the time-saving aerosol containers is a liquefied gas. THE END

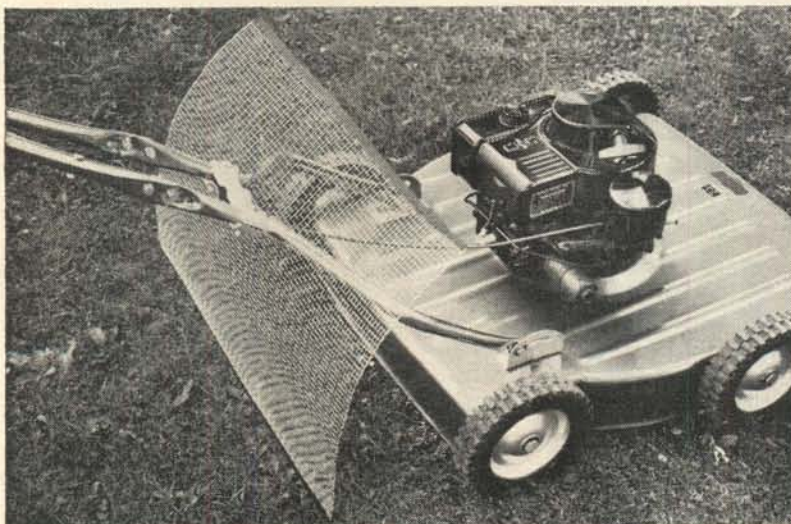
Mower Guards to make you safe — not sorry

BILL TOMAN

IN THE lawn mowing season scarcely a day goes by that some newspaper doesn't carry an account of an injury caused by use of a power lawn mower. Obviously, people can't stop mowing their lawns nor does any power mower owner want to give up the speed and convenience it provides. Illustrated here are two types of guards that you can build yourself to eliminate some of the hazards associated with power mowers.



THIS GUARD on a reel type mower will protect the operator from injury resulting from the blades picking up anything heavier than grass. For about 50 cents you can get a piece of 18" x 24" hardware cloth with a 1/4" mesh. Tape the upper rough cut edge with 1" masking tape folded over each side and fasten it to the top side of the lower part of the handle with two short pieces of copper wire looped through the mesh and around each tubular part of the handle. A word to the wise, etc.



THIS GUARD of 1/4" mesh hardware cloth will decrease the danger of debris or stones striking the operator's face. An 18" piece of standard 24" width screen was used and the rough cut edges were covered with 1" masking tape folded over each side. The handle was disassembled and the lower part placed through two 3/4" holes cut into the screen 6" from the top. This will leave 12" hanging below and allows ample ground clearance. Now you just worry about sunburn.

THE END

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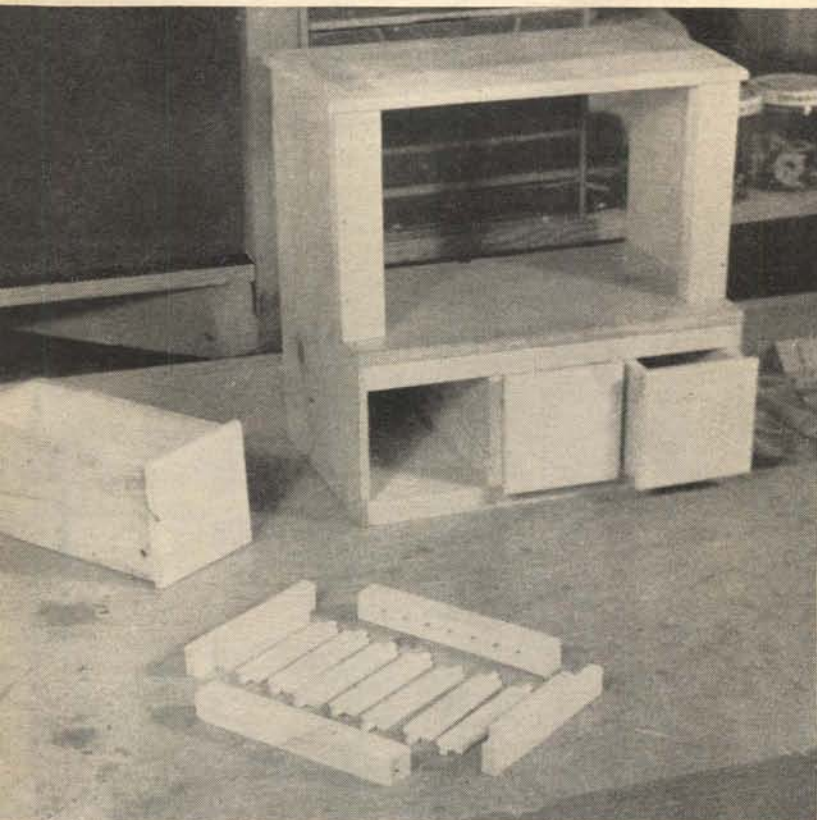
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THE GENERAL LAYOUT of the partially completed cabinet showing the details of one of the shuttered doors prior to assembly. The shutters can be either movable or stationary according to individual taste. The entire cabinet is made from apple boxes whose wood is easy to work and gives an interesting and attractive finish.

Dig out that discarded small radio and put it to use again by making it the heart of this musical spice cabinet.

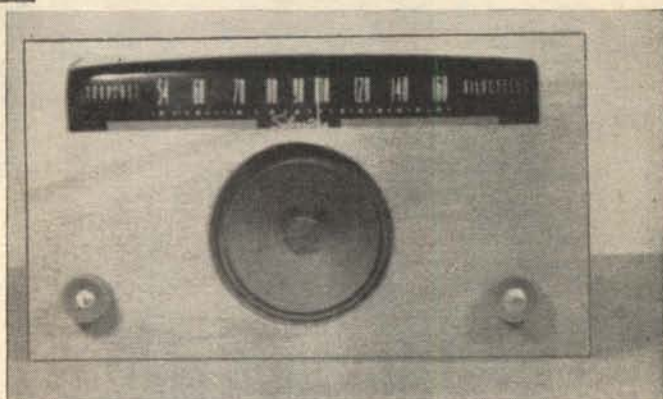


IF YOU would like to put that small old radio to a good use by providing your wife with some welcome entertainment while she is slaving over the kitchen sink, and at the same time add a decorative and useful gadget to the kitchen, then you can kill three birds with one stone by making this musical spice cabinet with the old radio providing the music.

Construction is simple and materials can be had practically for the asking. With the exception of the

Musical Spice Cabinet for the Kitchen

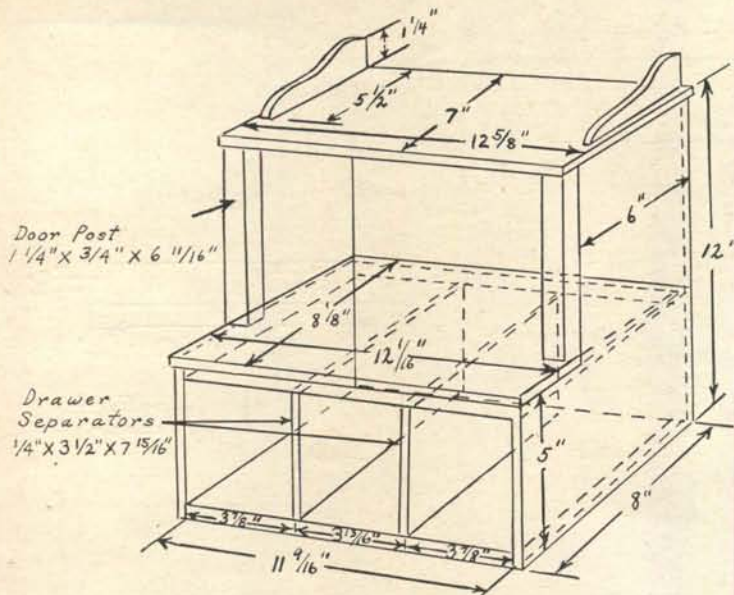
WEBSTER P. TAYLOR



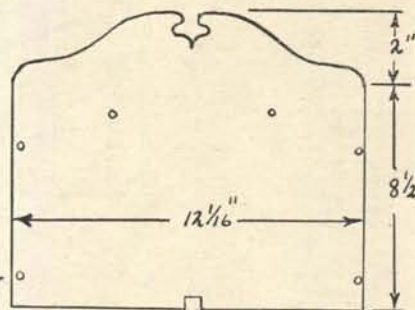
THE FRONT BOARD of the radio showing the cut out for the tuning dial and the speaker. The latter is covered with some suitable decorative cloth, which is glued on the back of the board, covering the hole. Holes are also cut for the shafts of the tuning and volume dials. The actual dimensions of the board as well as the cabinet are, of course, governed by the size of the radio chassis. The plywood used for this board was mahogany plywood which happened to be available. However, a portion of the side of an apple box may be used and is quite suitable.

decorative front to the radio, which in this instance was made from a piece of mahogany plywood just for the sake of contrast, all the wood used came from apple boxes, which the manager of any supermarket is glad to give away. The same wood can be used for the radio front if desired. The only actual cost involved was for brass hinges and wooden knobs for the doors plus part of a box of $\frac{3}{4}$ " wire brads and the brass screws to hold the upper part of the back. No unusual tools are

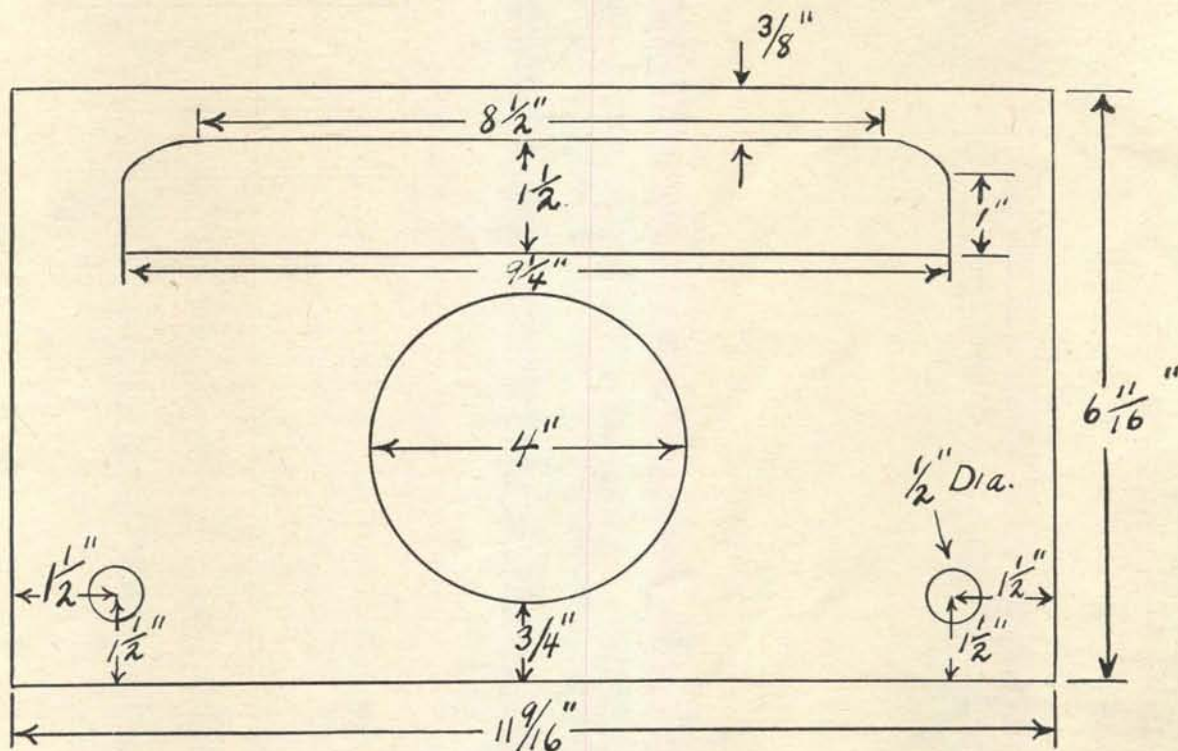
THE FINISHED CABINET with doors closed hiding the radio. Any finish may be applied, though because of the early American design a light walnut or maple finish is most suitable.



Detail Of Brackets
For Hanging Cabinet
Make From Galvanized
Iron



ASSEMBLY VIEW OF CABINET showing over-all dimensions. Dimensions may have to be altered to fit radio used.



FRONT BOARD OF RADIO

While any type of wood may be used in making the front board of the radio it must be borne in mind that all dimensions and cutouts must be fitted to the radio used. In order to secure proper placement of the front board in the cabinet, the front board should be put on the radio and held in place by the tuning and volume dials, then inserted into the cabinet. After this is done the position of the board may be adjusted so there is no binding of the knobs, then tacked into place with brads.

needed though naturally a power jig saw and sander make the work easier and quicker.

The sides of apple boxes are on the average 1/4" thick and these were used for all parts except the bottom and top of the drawer compartment. The ends of the apple box were used and they average 3/4" thick. Where

thickness is not shown on the drawings, 1/4" may be assumed.

The small sides on the top were the only pieces on which glue was used to increase strength, since their size necessitated using 1/2" wire brads to fasten the forward ends.

The upper section of the cabinet back was put on with screws so the

radio could be easily removed in case it needed a new tube or other repairs. Likewise the front cover of the radio was fastened to the radio rather than the cabinet to further facilitate removal.

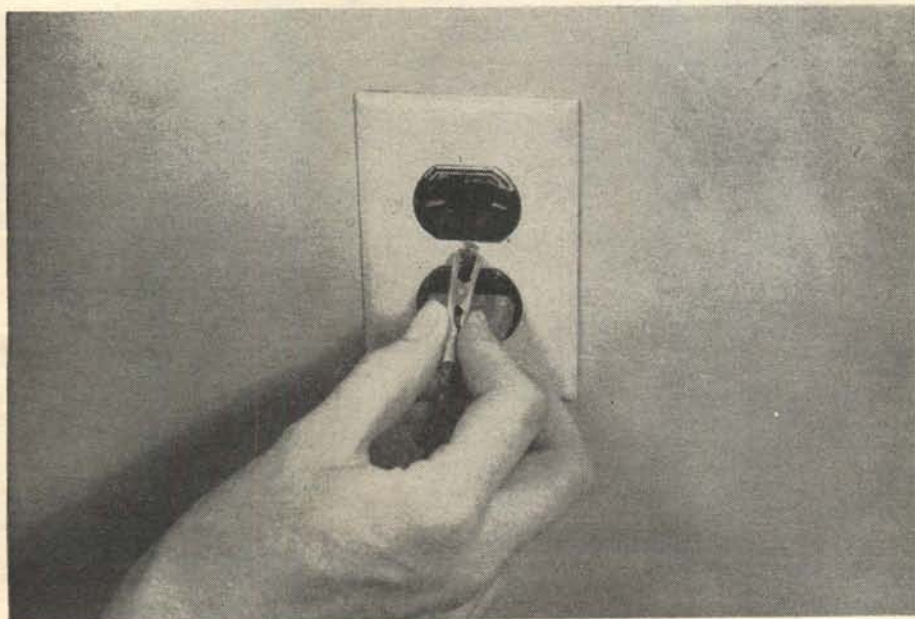
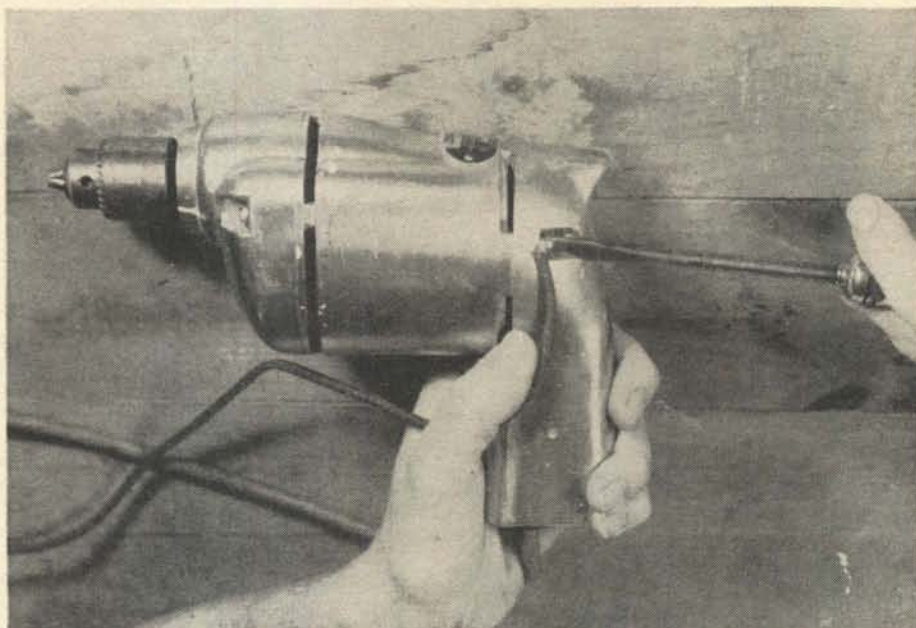
Any kind of decorative cloth may be used to cover the speaker hole. Just be sure its color will harmonize

Ground Tools for Safety

RALPH J. AHRENS

ELECTRIC TOOLS which don't come equipped with a ground wire for safe operation can be provided with one in a matter of minutes. All it takes is a length of wire of at least 18-gauge (doorbell wire) and an alligator clip. Proceed as shown in photographs.

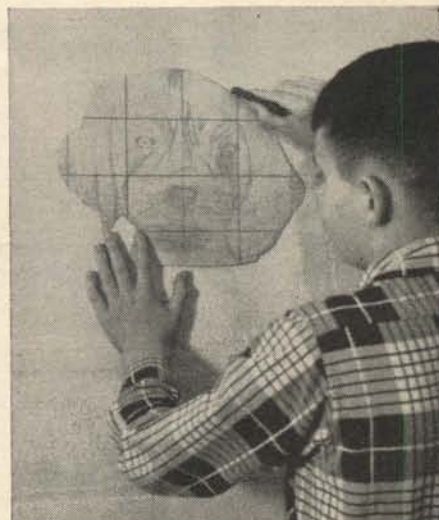
1. Simply loosen a screw in the housing a few turns, wrap one end of the wire around the screw and then tighten the screw. The wire then becomes a permanent part of the tool.



2. Fasten the other end of the wire to the screw holding the receptacle plate, to a water pipe or, if working outdoors, to a metal rod or pipe that has been driven several feet into the ground. An alligator clip gives the ground wire a finishing touch and also allows you to move from job to job with little wasted motion. Use a length of wire you figure will take care of all distances from the ground source to where you might be working.



SQUARE OFF small picture in order to make enlarged pattern.



TAPE large pattern to wall and draw around it.

Dogs brighten a basement room's walls

LILLIAN S. GRAHAM AND MARJORIE WACKERBARTH



REMOVE PATTERN and with pastel chalk, color large picture like original.



FINISHED PICTURES add lively interest to amusement room walls which had looked bleak and bare.

LIKE MANY another family we wanted to fix up an amusement room in our basement, but our budget for the project was pitifully small. After much consideration, we decided that we could, with very little expense, paint the cement block walls. We chose an off white color to lighten the room and made it look fresh and clean. As soon as we had completed the job we discovered our mistake. The walls looked clean, yes, but they also looked bleak and bare.

The 11-year-old boy in our house, Graham Wackerbarth, offered his services as a decorator. Art was the lad's poorest subject in school but we did appreciate his interest in his home. With tongue in cheek we gave him the go ahead to decorate the walls as he wished. Our one suggestion was that he use pastel chalk. This we knew could be erased, just in case!

Graham is very fond of dogs and he decided to decorate the walls with pictures of dogs. We wondered, would they be hard to differentiate from a cow, horse, or camel?

He hunted frantically through all our magazines for dog pictures. He finally found seven to his liking, which he cut out very carefully.

The next step was to enlarge the pictures to a suitable size for the room. The method was the same for all of them. For instance, he marked off a picture of a cocker into squares of one inch. On the back of a large sheet of old wallpaper, he marked off an equal number of three-inch squares. In other words, the large sheet of paper had the same number of squares as his small picture, except they were three times as large.

He began at the upper left hand

corner and copied in each large square exactly the same outline that appeared in the corresponding square on the small picture. When the outline was completed, he cut away from the big figure the surrounding paper. Result—a perfect outline of the enlarged picture.

He fastened this large pattern to the basement wall with gummed tape and traced around it on the wall. Then he removed the pattern. He had an excellent outline of the cocker's head. Using the original small picture as a guide he colored the dog as it appeared in the magazine. We were all delighted with his work.

THE LAD proceeded to draw six more dogs on the white walls. They were beautiful, and we were delighted until we discovered that he had picked a dog to represent the personality of each member of his family! The thoughtful springer spaniel represented his lawyer brother; the boxer, his grandmother; the care-worn beagle, his father; the lively terrier, his equally lively cousin; the kind cocker, he chose for himself; a Scotty, his red-headed pal. The bulldog was the last to be identified.

"Mother is like a bulldog," Graham said, "because when she says 'no' she never gives up."

The young man's artistry turned out so well we were sorry to have advised against his use of permanent paints. However, we followed the advice of a professional and sprayed each picture with a plastic fixative which we bought at the neighborhood paint shop. The plastic dries in minutes and preserves and protects the pictures.

Shelves for Back-of-the-door Storage

BOB REEVES

IF YOU just can't seem to find any more places to put anything, why not try the unused space behind one of your doors? The shelves shown here have been designed to hold a variety of items such as staple groceries, cleaning aids, plants or just plain trinkets. The shelf spaces have been made in a variety of sizes to accommodate many different sized things.

Soft pine is a good wood to use for shelves that are to be painted, but if you would like to put the shelves on display on the front of a door you might prefer one of the hardwoods. Cut the sides to size and shape first. Mark the shelf locations and cut the grooves or dados for the shelves. Let the dado grooves run all the way across the sides if you are going to paint the shelves. If you plan on a natural finish of some sort, a blind dado, or one that stops short of the front edge, would look better. Mark the location of the

dowel holes, making sure that the holes are located identically on each side, and then drill them to a depth of $\frac{1}{4}$ ". Cut the shelves to the proper width for their respective locations and plane the front edges to the proper angle. Assemble the complete shelf unit to see if everything fits together properly before you reassemble it with glue and nails.

Finish the shelves by sanding all the surfaces smooth and slightly rounding each corner. Apply two or three coats of enamel, sanding down between each coat.

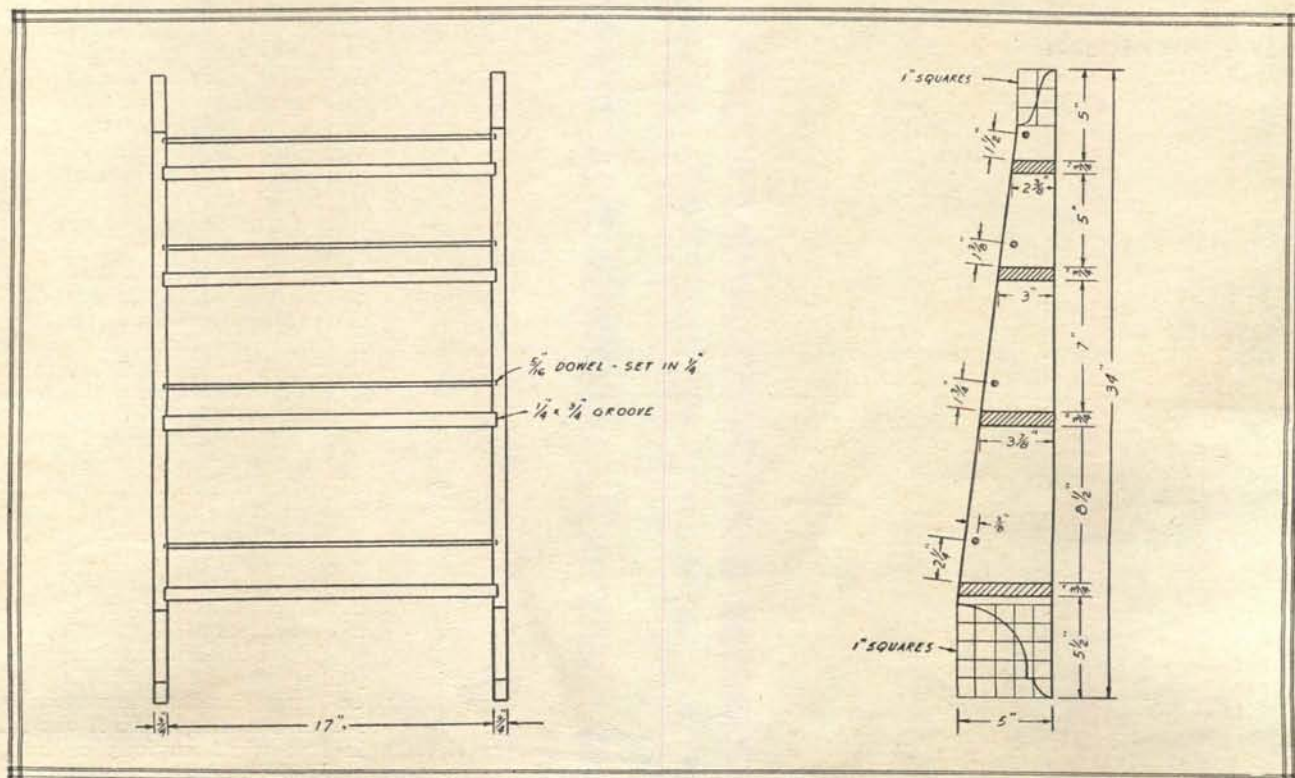
In order to hang the shelves you should first drill holes on an angle through the top and bottom curved portions. Place wood screws in the holes and attach in place.

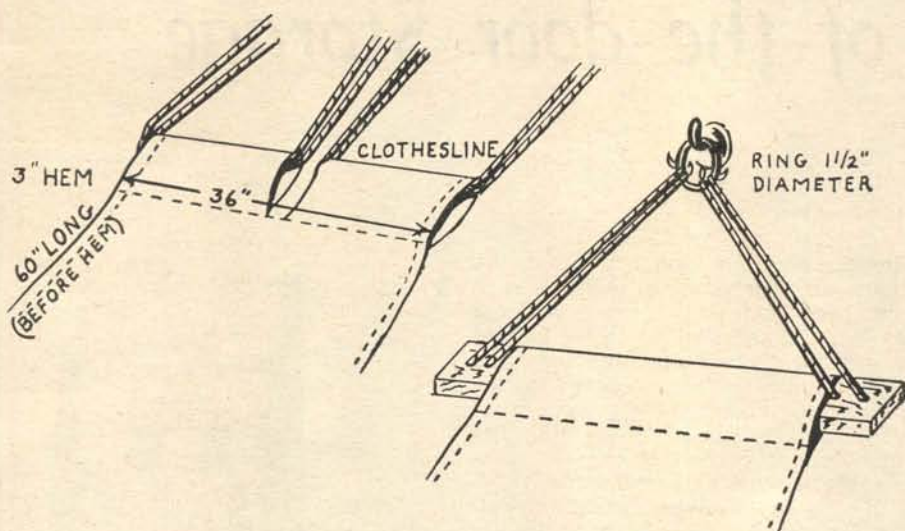
THE END

STORAGE SPACE that might otherwise be wasted is utilized by attaching this shelf unit to the back of a door.



See page 62 for directions on How to Enlarge Squared Patterns and Designs.





If you are touring in your motor car this summer, here are a couple of devices to help keep everybody from baby to father relaxed and in good spirits.

HERE'S A handy hammock for baby that combines use of dad's workbench and mother's sewing machine.

When our baby grew too large for our conventional car bed and our 5-year-old needed room on the back seat for an occasional nap on a trip we made a hammock for the baby that solved the space problem.

We used heavy burlap material we happened to have on hand, but any strong cloth would serve nicely, or, if buying it especially for the purpose, strong white canvas duck would be ideal.

Baby can't fall out since his own weight holds him in; he can use it until about the age of two, and a hard-to-put-to-sleep baby will love the rocking as the car moves. An older child has the length of the back seat to himself and when baby is awake the hammock folds up as neatly as a towel and can be placed on the shelf.

We cut the cloth, 60 inches long and 36 inches wide, hemming up about 3 inches on each end and an inch or so on each side. A flat board about an inch and a half thick and a yard long was pushed through the top hem, and four small holes drilled through the wood, two at each end, about an inch apart, through which were tied lengths of clothesline about 12 inches long. The actual length would of course depend on the type of car and distance between coat hooks. These in turn were tied into a metal ring about 1 1/2 inches in diameter.

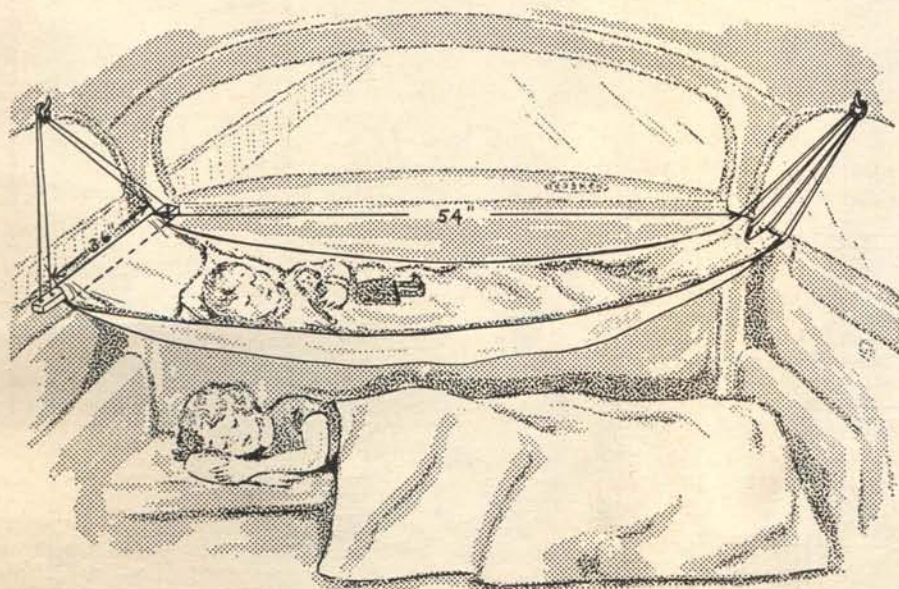
At the other end of the material a slit was cut in the center of the hem allowing the clothesline to be drawn through from both ends and out in the middle and these were fastened into another metal ring, same size.

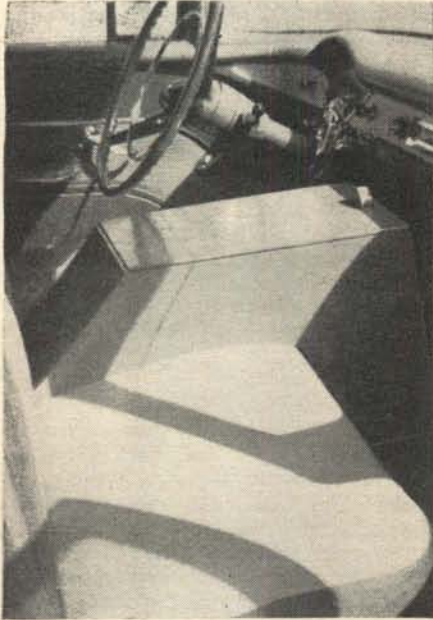
The rings were looped over the coat hanger hooks on either side of the car. Baby lay deeply in the middle, rocking away, when placed in his new bed.

We use our hammock on many long journeys and even find it convenient on long Sunday afternoon drives. Never a mishap, and if our little girl is somewhat envious of baby's joy ride, we do have a contented baby!

Back Seat Hammock for Baby

SHIRLEY F. DECKELMAN





THE UNIT POSITIONS in the center of the seat. Adequate seating space is still left for driver and passenger. The taper was designed to allow the split-type seat to function without disturbing the position of the unit.



TWO LARGE COMPARTMENTS increase the storage space available for items usually carried in the car on long trips. (Note the full-length gusset at front left corner inside the front compartment.)

Auto Storage Unit Doubles as Armrest

JAMES HYEK

AN AUTOMOBILE usually suffers on long trips. The glove box isn't large enough to hold all of the little things which are carried in the car. At the end of a day of travel with two small children, my car would have empty candy wrappers, melted crayons, torn maps and broken toys scattered all over the seats. My nerves would be frayed from trying to keep the camera and binocular cases from being scuffed or damaged. These are items which are not usually packed in the trunk because of continual use while traveling.

My solution to this problem of storage was to build a special unit to be carried in the car. This combination armrest and storage unit is large enough to hold the cameras, binoculars, maps, candy and fragile cookies while on long trips with children.

The car stays cleaner and remains tidy. Possessions are not exposed to view in public parking lots. The unit is separate from the car and can be lifted out for storage in the trunk when it isn't needed. Since the unit is complete with sides, bottom and top, it can be taken into the house to be packed or conversely it can be carried, packed, into a motel room at night.

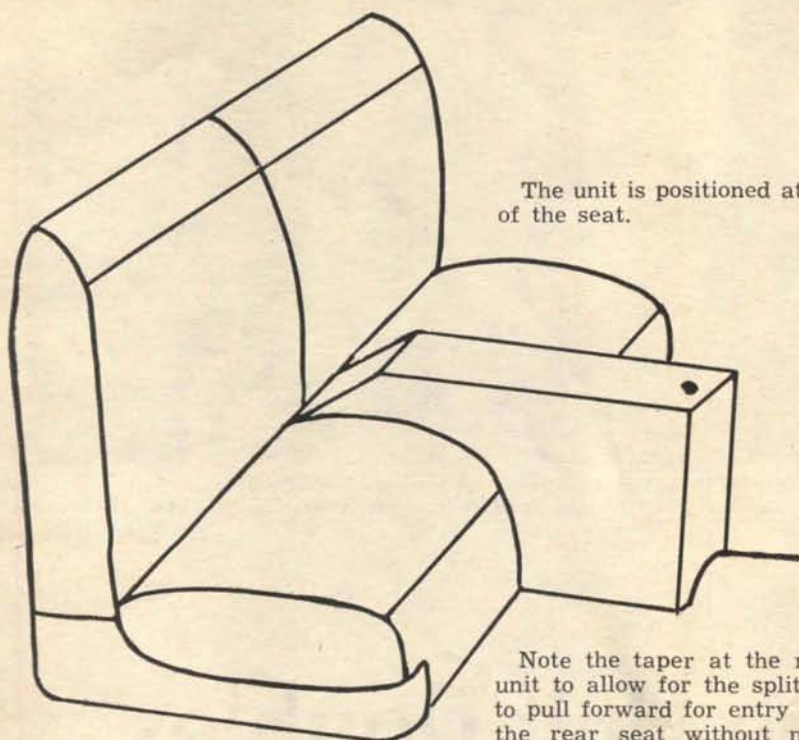
The unit in itself is nothing but a box, but it is a box fitted to your automobile. It is designed to be readily available to the driver yet not be underfoot nor in the way of passengers or operating controls of the car. Construction is simple. The material required for the storage unit consists of less than a half-sheet of $\frac{1}{4}$ " plywood, about eight feet of $\frac{1}{4}$ " quarter round (used as gussets to

brace the corners), a medium sized tube of wood glue and a small box of $\frac{3}{4}$ " No. 18 wire brads.

TO BEGIN, determine the size and measurements for your unit. These will depend on your model and make of automobile, where you position the seat for driving and your size. The dimensions given in the diagrams of the original unit will give you an idea of the approximate size to expect. To simplify this process, cut your pattern for the sides from a piece of cardboard. A piece of cardboard about 18" by 30" will be large enough. Measure the width of the seat and the height of the seat at the point about where you expect the side of the unit to be. Cut that section of the cardboard out. Now rest your pattern on the seat. Then

with a set compass, follow the curve of the seat with the point. The pencil end will trace an approximate curve on the cardboard. After you cut the curved section away, lay the pattern on the seat again. Any minor changes can be trimmed off with the scissors. If your car has a split-type seat which must pull forward to allow passengers to enter the rear seat, allow for it and taper the rear of the

unit. To do this, insert your cardboard pattern into the crack between the seats and pull one cushion forward. Mark on the pattern the angle needed and cut it off your pattern. The completed pattern should reflect your particular conditions. The height of the unit should be comfortable for an armrest but not high enough to interfere with gear shift or operation of the steering wheel.



To determine this, sit in the driver's seat with the pattern placed about where you expect the storage unit to be considering the desired width. The length should be long enough to allow sufficient storage but short enough not to interfere with anything on the dashboard. In our Chevrolet, the glove box door is located in the center of the dash, so we had to allow space for the door to open.

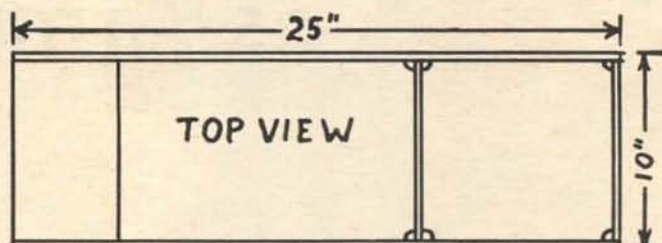
We have assumed that before you began construction on your unit, you have studied the diagrams and have made some decision on the desired width. The width of the unit is your choice. We used a 10" width, although two larger people might prefer an 8" width.

The sharp taper at the rear of the unit allows the split-type seats to function without the necessity for moving the unit. If you have a four-door model car, the rear taper is not necessary.

The front cross section will have to be fitted to the drive-shaft hump. Here again, make a cardboard pattern for the curve of the hump. It's faster than trying to fit the plywood.

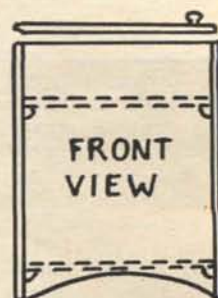
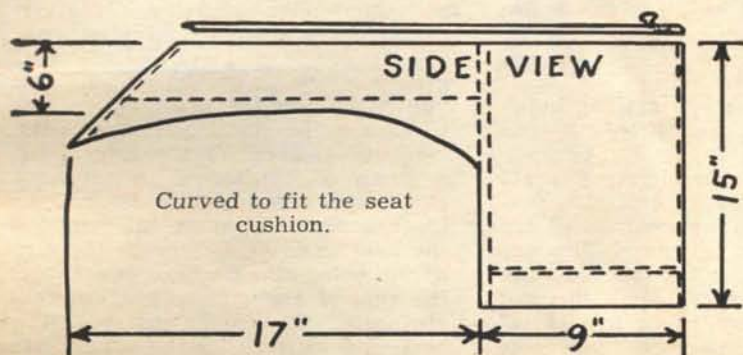
The cover for the unit can be made from $\frac{3}{4}$ " stock and rabbeted to fit the compartment openings. Or, you can make the cover the way we did. We had $\frac{1}{4}$ " plywood left over from the original half-sheet, so we utilized what we had. To make the cover this way, measure to the outside dimensions and cut a piece that size. To obtain the lip, to prevent the cover from sliding off, cut the left-overs of the quarter round to the inside di-

The following top, side and front views are shown with the dimensions of the original unit and are intended as a guide for your unit. Some of the measurements will vary for your car. The broken lines indicate the positions of the front, middle and rear dividers and the locations of the bottoms to the two compartments.



Note end view locations of $\frac{1}{4}$ " round gussets. (All corners and under bottoms.)

Sharp taper not needed if your car has a solid back.

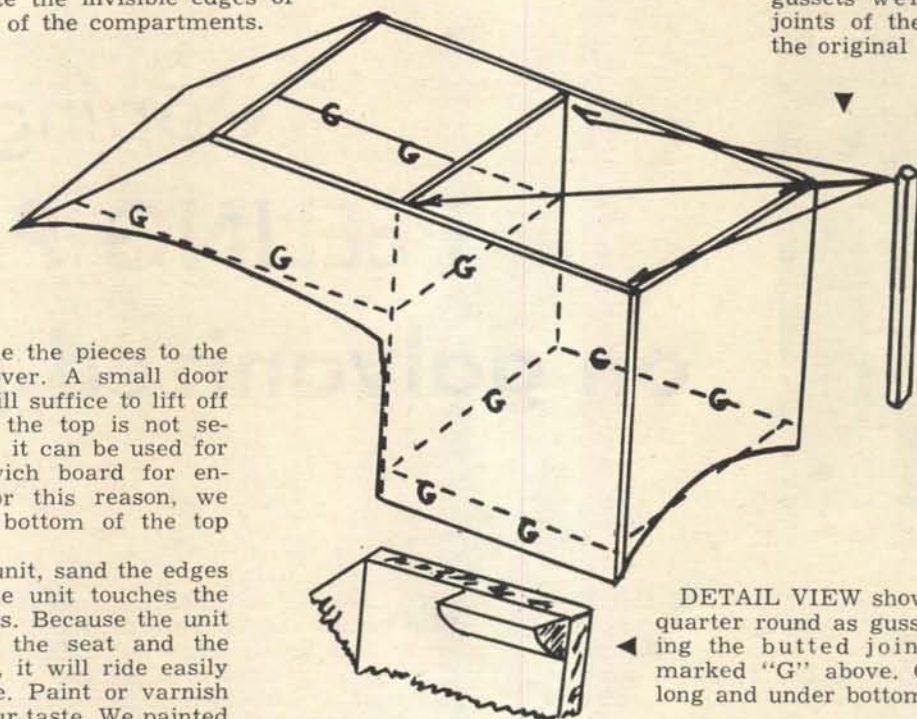


Curved to fit the drive-shaft hump.

THREE-QUARTER FRONT VIEW.

To indicate the location of the front, middle and rear dividers. The broken lines indicate the invisible edges of the bottoms of the compartments.

Note: Full-length $\frac{1}{4}$ " quarter round gussets were used on all vertical joints of the front compartment on the original unit.



mensions and glue the pieces to the bottom of the cover. A small door pull on the top will suffice to lift off the top. Also, if the top is not secured to the unit, it can be used for a tray or sandwich board for en-route snacks. For this reason, we didn't paint the bottom of the top cover.

To finish your unit, sand the edges well wherever the unit touches the fabric of the seats. Because the unit is shaped to fit the seat and the drive-shaft hump, it will ride easily and stay in place. Paint or varnish the unit to suit your taste. We painted our unit a marine blue to match the interior trim of our car. For cleanliness sake, the inside of our unit is painted a gloss white, which makes it easier to keep wiped out.

One last hint for additional use: the unit is handy for holding snacks if you go to drive-in theaters. Don't forget to include an extra bag in the front compartment for a litter-bag.

THE END

All joints are simple butt joints assembled with $\frac{3}{4}$ ", No. 18 wire brads and a lavish application of wood glue.

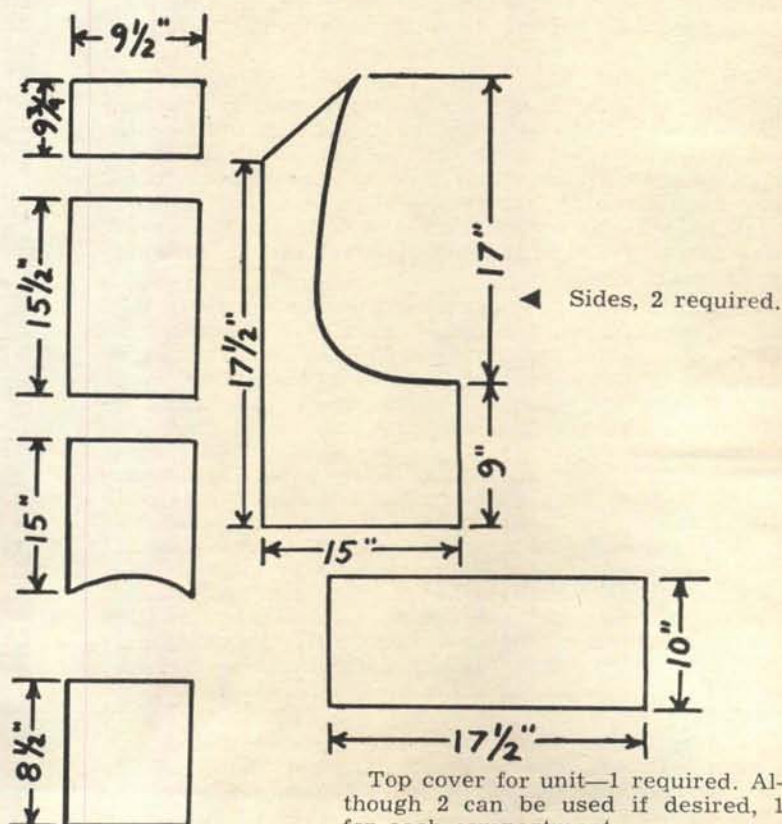


Divider piece for rear taper section—1 required.

Bottom for rear compartment—1 required.

Divider piece for front and rear of large compartment—2 required.

Bottom for front compartment—1 required.



Top cover for unit—1 required. Although 2 can be used if desired, 1 for each compartment.



WHEN THIS HOUSE was 18 months old, practically the entire surface of the gutters on all sides was peeling.

Coping with PEELING PAINT on galvanized parts

JOSEPH A. AHLERS

EVERY DAY the ugly spectacle of palm-sized flakes of paint curling and hanging from drain pipes and gutters on a comparatively new house forces many thousands of prideful but angry homeowners into major expense which could be avoided. But there is a solution, and an effective one, to this long present annoyance.

There are three chief causes of early paint peeling, cracking and crazing on galvanized pipes, flashings, plates, gutters, drains and other exposed parts. The first is painting in cold weather, the second, galvanized parts not being thoroughly cleaned; and third, the use of paints which do not have sufficient qualities of adhesion, rust prevention and elasticity. There is no excuse for failures which are due to the first two causes, as every qualified home builder and painter should know about them. And the third cause is becoming less excusable with the development and proving of new paints within the last ten years.

1. As to painting temperature, one of the oldest maxims in the painting trade is—**never paint in weather under 40 degrees**. But today many painters will violate this precept, taking a gamble because of expediency, urgency or insistence of the builder, but seldom because they don't know better. Failure of paint applied in cold weather is due to several factors, not the least of which is differences in coefficients of expansion at extreme temperatures.

2. As to the matter of cleaning galvanized parts, the subject has become somewhat more involved with the introduction of new practices in treating the new sheets at the mill. Some may be untreated, some may have an oil film and, more recently, some may have a coating of inhibitor to protect them against a condition known as "wet storage stain." The fabricator who uses these sheets to form gutters, drain pipes, etc., to furnish to the builder, should know about these coatings and should supply his product cleaned and ready for immediate painting. Even better, the builder and painter should have this information and be able to order the parts in proper condition for the purpose. In modern practice, this is done, although the galvanized parts will accumulate greasy finger marks, dirt, oil, dust and other foreign material from repeated handling and installation. Therefore, final cleaning is necessary before painting.

3. The third cause of early paint failure on galvanized parts, i.e., the use of improper paint, will be virtually ended when the entire building and painting trades learn more about zinc dust and metallic zinc paint, known as MZP.

MZP IS not a new product. According to the American Zinc Institute it has been used satisfactorily for many years, both in this country and Europe, but only during the last 15 years has it become backed by scientific experiments and long period service tests under all types of exposure conditions. Such tests by the Agricultural Departments of the Pennsylvania State University, the University of Illinois and others, in the investigation of protective paint coatings for galvanized roofs and walls of farm buildings, produced findings which point to the conclusion that the best choice for maintenance of galvanized parts is metallic zinc paint. This paint now has a Federal Specification (TT-P-64lb) and many reputable paint manufacturers have begun to produce it. The pigment is composed of 80 per cent zinc dust (metallic zinc) and 20 per cent zinc oxide. The vehicle generally used is linseed oil or processed soybean oil, together with suitable thinners and driers, although for certain industrial applications, other vehicles are used.

Inasmuch as galvanizing itself is simply a fused-on protective coating of pure zinc (about 2/1000 inch thick), MZP has an affinity for it as well as for other metals. This superior adhesion actually means that the metallic zinc paint "protects the protection" and, being notably elastic as well, it expands and contracts with the metal to insure against cracking and peeling. In literature distributed by the American Zinc Institute these claims are accepted as facts proven by exhaustive tests and are expected to be further supported in a brochure in preparation by the American Paint, Varnish and Lacquer Association.

THE GUTTERS on this same house, two years after properly refinishing, showed no sign of peeling or cracking.



FOR THE homeowner who faces the problem of refinishing unsightly gutters, and who might have the dread suspicion that it will happen again, the corrective procedure is quite sure to produce good results but, is not easy. The old paint must be removed, every bit of it, down to the bare metal. The quickest way to do this is with paint remover, used according to directions on the container. To avoid most of the mess on the ground, a large cloth or paper should be placed below the area being worked, covering plants and bushes, so that chips and skins of paint can be caught and removed. Shaving off the softened paint with a putty knife is to be preferred rather than attempting to wash it off with water and cloths in such a difficult position, and slopping water on the walls, windows and plantings.

After the old paint has been completely removed, the metal must be cleaned. Vinegar and mild etching solutions are not recommended. Vinegar is only a 6 per cent solution of acetic acid which neither cleans nor etches. This is one of the first conclusions drawn from tests by the Pennsylvania State University showing that there is no benefit from the use of vinegar wash, and that it actually proved detrimental with certain paints. Another conclusion from the same tests is that there was no evidence of advantage in weathering galvanized parts before painting—with one remote exception, as follows: if the sheets used to fabricate the gutters were treated with an inhibitive coating and not subsequently phosphated or bond-erized, then the parts should be allowed to weather for six months. However, when a mill or warehouse furnishes galvanized sheets to a fabricator, these sheets will be correctly conditioned for the purpose, and the chance of error or neglect is remote.

The Federal Specification advises that dirt and greasy material should be removed by cleaning with a solvent such as turpentine or mineral spirits before painting. If some corrosion has occurred, loose rust should be removed with a wire or stiff bristle brush and the areas touched up with MZP before painting the whole surface.

The galvanized parts are now ready for the prime coat of metallic zinc paint, but not in cold weather. Best results are obtained in warm weather—70 degrees or more. The priming coat can be thinned with turpentine just enough to facilitate brushing but not any thinner. One coat is sufficient if the gray color is satisfactory, but if a color coat is required it can be applied in about 48 hours. MZP is quite satisfactory as a finish coat but its color is necessarily gray.

THE END

E-X-T-E-N-S-I-O-N

for stepladder



HUBERT KALTENBACH

on the stairs the leg with the extension in use will rest on the second step **below** the other.

Measure how far down on the leg the extension should extend to permit the ladder to be on an even keel when leaned against the house.

That done, place the extension in the position decided upon, again using the two holes in the extension as a guide to drill corresponding holes in the leg of the stepladder which will take 3" bolts and hold the two parts firmly together.

Disassemble and give the extension piece several coats of spar varnish, sanding lightly between coats.

After the finish coat has hardened, bolt the extension in the **first** position on the stepladder, where it will be close at hand the first time needed.

It may be necessary to drill several different pairs of holes in the leg of the stepladder to enable you to adjust the extension for different working areas over various steps and stairs around your house.

THE END

A STEPLADDER extension is a handy aid to household chores in those hard to reach places most homes seem to have—especially the window and wall areas above porch steps and stairways.

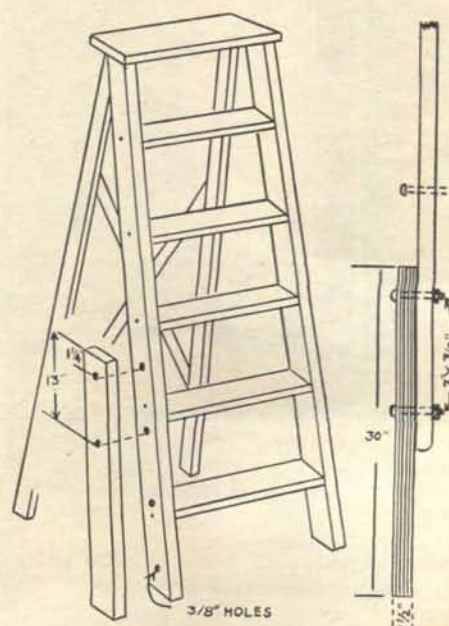
The extension is made of two thicknesses of $\frac{3}{4}$ " exterior plywood glued together, (the double thickness is recommended because of firmer footing and support) 30 inches long and 2½ inches wide.

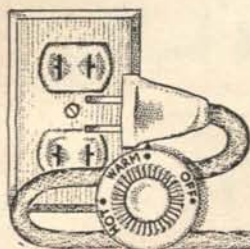
Saw one end at a 15-degree angle, to be used as the foot of the extension.

At the opposite end drill a $\frac{3}{8}$ " hole 1¼" from end and another 13" from end. Then place the extension piece on one leg of the stepladder, the angle of the two ends being flush.

With the two holes in the extension piece as a guide, drill corresponding holes in the leg of the stepladder. These holes will be used to bolt the extension to the stepladder when not in use, but always handy when you come to the place where it will be needed.

Note that when the ladder is used





Advice to apply to appliances

Part XIV: Minor Repairs to Major Appliances

J. J. LIGHTER

"RADIO, TV, and appliance repairmen are cheaters, crooks, and liars!" If I adopted this as my theme maybe I could join those who imply the above statement in the national magazines several times a year. This is neither the time nor the place but these thousands of maligned service technicians deserve a chance to reply to these attacks. I mention this here because the area of major appliances is one which should be treated with respect by the average home craftsman. In repairing major appliances you will frequently require the services of one of the experienced and efficient repairmen whose work deserves the same vote of confidence you accord other skilled occupations.

We have had quite a few inquiries about utility testers, where they may be bought, which kind is best, etc. Up to now in this series, and in my answers, I confess to being rather general and evasive about the issue for I am not in the business of selling meters of any kind. Since a utility tester should be an item of basic

equipment for appliance trouble shooting I believe it would be a good idea to devote some time in assisting WORKBENCH readers in making a "good buy" of such a tester. It is often said that, "A workman is no better than his tools." In this connection I am sure you will find that the small investment required for a utility tester will pay you substantial dividends.

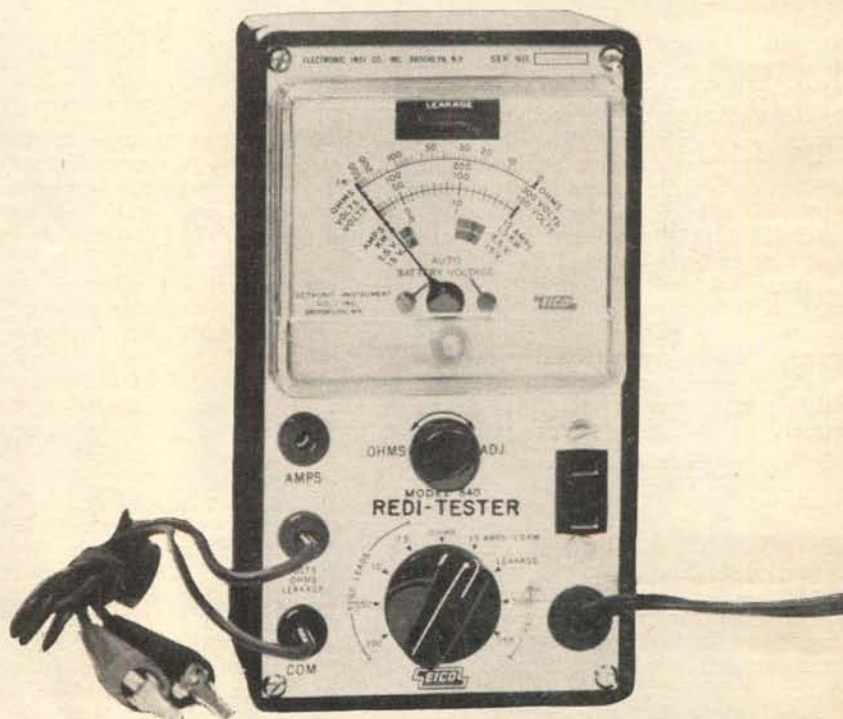
To answer the requests for such assistance from our readers I had planned to pick out one meter to talk about. The job is somewhat more complicated than that. In surveying the many pieces of test equipment on the market I have concluded that only two meet the requirements of the home mechanic. I will present these two utility testers and you may make your own choice. It should be remembered that a true utility tester is designed to be of maximum use in electrical—not electronic—service work. Utility testers can be used to make some checks and certain tube tests in radio and TV work but cannot be expected to give accurate

readings in the very low current circuits of this type of equipment. A meter that would do all of these things accurately would probably be very expensive indeed—for these are simply two different types of applications.

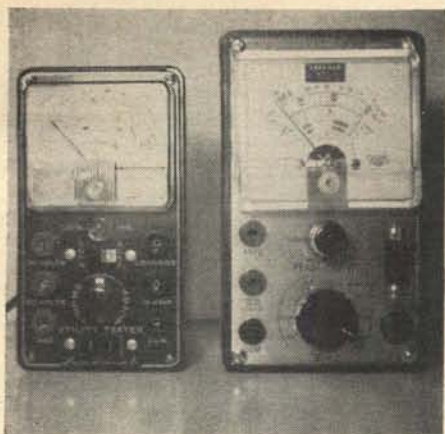
TO QUALIFY as a home utility tester a meter should have at least the following capabilities: 1. Maximum scale of 150 volts for checking ordinary household circuits of 110 volts; 2. Maximum scale of 300 volts for circuits wired for 220 volts; 3. Ammeter which allows checking current consumption of appliance (up to 15 amps) while appliance is in operation; 4. An ohmmeter for checking resistance of circuits or components, particularly those having a resistance under 500 ohms; 5. A continuity checker for high resistance paths of over 1,000 ohms which also serves as an indicator for detecting electrical leakage. Both the Model 70, shown in Photograph 1 and the Model 540, shown in Photograph 2 exceed these requirements. Individual differences in these meters will be dis-



PHOTOGRAPH 1—This is the Model-70 Utility Tester manufactured by SICO.
(Photograph courtesy Superior Instruments Company)



PHOTOGRAPH 2—This tester is called the Model-540 Redi-Tester and is manufactured by EICO.
(Photograph courtesy Electronic Instrument Company, Inc.)



PHOTOGRAPH 3—This view shows that the Model 70 and Model 540, while similar, vary somewhat in size.



PHOTOGRAPH 4—The Model 540 is shown here being used to check line voltage at the outlet.

cussed also. Photograph 3 shows the two meters side by side. Size is not an operational consideration as the actual scale portion of each meter covers about the same area.

SICO (Superior Instruments Company) calls its device the Model 70 Utility Tester while EICO (Electronic Instrument Company) calls its meter the Model 540 Redi-Tester. For your information the Model 70 is available, fully assembled, for \$15.85 from: Moss Electronic, Inc., 3849 Tenth Avenue, New York 34, N. Y. The Model 540 is available, fully assembled, for \$15.95 from Electronic Instrument Company, 33-00 Northern Blvd., Long Island City 1, N. Y. EICO also furnishes the Model 540 in kit form for \$12.95. All prices are subject to change.

Batteries, test leads, and instruction manuals are included with all of the above meters. EICO's kit takes from two to four hours to assemble and is not at all difficult. I suppose it all depends upon which you have the most of—time or money but there are two sides to the argument. For the man who likes to do things for himself while saving money a kit is ideal. EICO markets a whole line of test instruments, hi-fi, and ham gear both in kit form and factory-wired. SICO's other test instruments (also marketed by Moss Electronics) are offered only as factory-wired. I can immediately see one line of thought supporting this policy. If a kit builder makes a mistake and the device fails to operate properly, he is apt to blame the manufacturer rather than himself—and an unhappy customer is a poor advertisement.

WHILE essentially the same, both the Model 70 and the Model 540 do have some individual differences. In addition to meeting the five capability requirements set forth earlier, both meters have low voltage ranges which make trouble shooting of automotive electrical systems possible.

Both meters are rugged and, barring improper use, should last almost indefinitely. The only expendable items are the flashlight cells needed to power the ohmmeter portion—no one can expect these to last forever. The utility tester shown in most of the previous articles of this series was the old Model 50, predecessor of the Model 70. It is interesting to note that two of the modifications I immediately made in the Model 50 have since been incorporated into the Model 70. I had added an automotive scale and substituted a test prod for one of the clips.

A clip allows one test lead to remain stationary while a test prod is more convenient to have for moving along a circuit to various check points. The Model 540 uses two clips instead of one prod (as in the Model 70) but they are not bulky to use and are handy in the event both test leads must be fastened to the circuit for a time. The Model 540 changes to most of its functions by the use of a rotary switch while most of the functions on the Model 70 are selected by plugging into the proper jack.

The Model 540 has a wattage range with a maximum reading of 1.5 KW (1,500 watts.) The same approximate results can be obtained on the Model 70 by multiplying the reading in amps by 100. Line voltage (voltage available at the outlet) can be measured on the Model 540 simply by selecting the appropriate switch position and plugging the line cord into the outlet; the test leads need not be used.

Both SICO and EICO maintain a registration system for your protection. By filling out and sending in a card as soon as you receive your instrument, you place in effect a warranty to protect you against defects in materials or workmanship. This also applies to EICO's kit but with the stipulation that if misuse or incorrect assembly has occurred a charge will be made for repairs.

Both testers come complete with

operating instructions. These testers have a much wider range of application than it has been possible to mention in this series. The 64-page manual that accompanies the Model 70 is especially complete in describing the uses of this meter. A total of 43 illustrations help explain, among other things, the testing of appliances, automotive circuits, and radio-TV tube testing. I find no one thing or combination of things that would definitely rule out one of these meters as an intelligent choice. Since different people prefer different things I have listed the major facts as I have found them for your consideration. Both meters are honestly—even modestly in some cases—described in advertisements and are backed by reputable firms.

As utility testers both the Model 70 and the Model 540 rate high. I find it impossible to be more specific than to recommend them both as good buys. This meter discussion has been presented as a service to WORKBENCH readers; any home craftsman who is serious about doing his own electrical trouble shooting would do well to own one of these utility testers.

A MAJOR appliance is one of the larger appliances which may be movable—but not thought of as portable—which is usually installed for operation in one particular place. When we consider that the major appliance list includes ranges, washers, dryers, refrigerators, etc., we may assume that cost is also a factor as well as the bulk of the item. Knowing when not to attempt a repair is an important part of the successful home mechanic's knowledge. The weight, size, cost, special tools, and time required are among the limiting factors in the home repair of major appliances. Complexity of items like the automatic washer and parts of the refrigerator point out the need for an experienced serviceman. There are, however, many moneysaving things that you can do without jeopardizing either yourself or the appliance. The purpose of this article is to discuss some of these. One more thing about appliances in general and especially major appliances bears mention here. **DO NOT TAMPER WITH APPLIANCES STILL UNDER WARRANTY!** To do so means to jeopardize your rights under that warranty. You should read the warranty and know exactly what is included before you buy the appliance. Many people are not aware that a major appliance may have two warranties. A refrigerator, for example, may have a one-year general warranty on the entire appliance with an additional four years on the sealed unit alone. A warranty is your insurance, you have paid for it—collect on it when it applies. You do not have to feel that you are imposing on the dealer, because he is reimbursed by

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the manufacturer for warranty work.

About the first thing to check on any appliance that is not operating is whether or not there is voltage at the outlet. In Photograph 4 the Model 540 is shown plugged into the outlet. This particular meter is wired so that it will read line voltage in this manner without the use of the test leads. If there is no voltage at the outlet, of course, check the circuit fuse. Make certain that the appliance plug is making good contact in the outlet; spreading the prongs of the plug a little farther apart usually helps insure this.

Refrigerators

THE HOUSEHOLD refrigerator is relatively trouble-free but it does have a few weak points. Its door constitutes a large area and when it doesn't seal properly the refrigerator keeps trying to cool the room as well. Photograph 5 shows a piece of paper being used to test a refrigerator gasket. You can tell by the grip of the gasket on the paper how well it is sealing. This should be done several places around the door. Servicemen and conscientious furniture movers frequently use a dollar bill as a convenient piece of paper for this test. Any device, whether an appliance, furniture or otherwise which has a large door must be



PHOTOGRAPH 5—A piece of paper may be used to check the refrigerator door gasket.

PHOTOGRAPH 6—This door gasket is held in place by the black panels around the inside of the door.



leveled if proper results are to be obtained. Floors are not as level as commonly supposed and often must be compensated for if a refrigerator door is to close properly and give a good seal. Some refrigerators have adjustable legs which make leveling relatively easy; on others shims of wood, cardboard or other material will have to be placed under the legs as required.

It is not a good idea to tamper with the adjustments on the door latch or hinges of the refrigerator until you are absolutely certain that the refrigerator has been fully leveled. Adjustment of these items is required sometimes to insure a good job. Some refrigerators have screws hidden behind the door gasket which may be either tightened or loosened to give a good even seal.

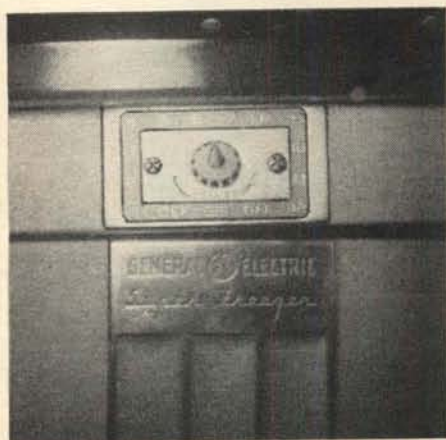
Old and worn door gaskets as well as those not adjusted properly are often responsible for the refrigerator's running too often and frosting too quickly. After checking to see that the refrigerator is properly leveled, check for possible adjustments at the latch, hinges, or behind the door gasket. It is impossible to describe these adjustments for all makes and models. The average home craftsman, once he knows that they are there, will find no trouble in figuring what steps to take.

The refrigerator shown in Photograph 6 has a nonadjustable gasket. In time, door gaskets become worn, less resilient, and therefore unable to make a good seal. I have seen refrigerators traded in because they "... frost up too quickly..." when the only thing wrong with them was a defective gasket. The gasket in Photograph 6 is held in place by the black panels which also support the piece that forms the inside of the door. Disassembling the whole door before you attempt to replace the gasket (which comes in one piece) may prove to be more work than is necessary and find you needing more hands than you have. The following procedure will probably be easier on the model shown here: 1. Remove only one panel at a time. 2. Remove old gasket from that section. 3. Install proper portion of new gasket in that section—keep the break in the gasket toward hinge side of the door. 4. Replace panel. 5. Repeat this procedure until entire gasket has been replaced. Note: While you replace the gasket one section at a time you **do not** cut the gasket—install it as one piece.

Gaskets and other repair parts may be obtained from the dealer's service department. If you received a parts list, you can identify the part and purchase it by part number. In any event, it is handy to have the make, model, serial number and part description written down for easy reference. Parts for refrigerators (and many other appliances) bought from mail order

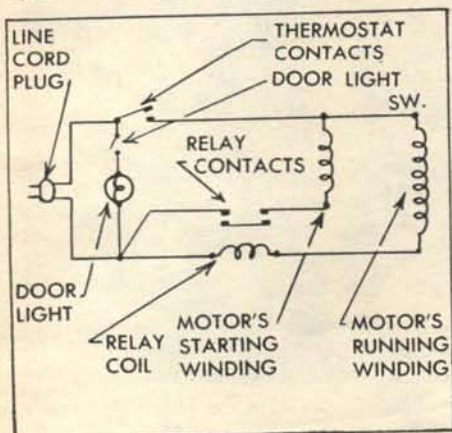
firms may be purchased the same way.

The thermostat or temperature control device is often a "weak link" in some refrigerators. I know of old refrigerators that have never had a thermostat replaced and of newer ones that seem to need a new one almost every year. No operation, erratic operation, or refrigerators that seem to start or stop every time the door is operated give reason to suspect the thermostat. Photograph 7 shows the temperature control knob in an older model General Electric refrigerator. The temperature control knob governs the setting of the thermostat which is located right behind it. Figure A is a simplified drawing of the electrical circuit of a refrigerator. An ohmmeter check at the line cord plug would not pinpoint your trouble for you. The reason for this is that if the thermostat was open you would read the resistance of the bulb that lights when the door is opened (if, of course, the thermostat was closed, you would



PHOTOGRAPH 7—The temperature control knob and thermostat assembly are located in the top of the freezing compartment in this model refrigerator.

FIGURE A—A simplified drawing of the electrical circuit of a refrigerator. The action of the relay coil is such that the starting winding is energized only at the beginning of each "on" cycle.



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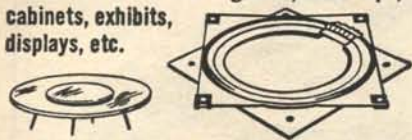
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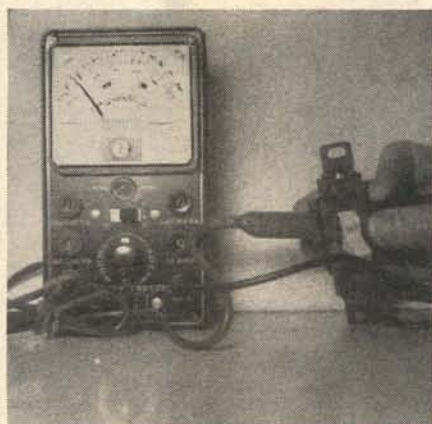
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get a low resistance reading because of the relay coil and the motor's running winding, which, although in series with each other, would now be placed in parallel with the bulb. An erratic thermostat is more usual than one that just quits. If tapping the thermostat or jarring the refrigerator cabinet affects the refrigerator unreasonably, chances are you have located the culprit. I saw a refrigerator not long ago that took fits of not running. It could be started, however, by tapping the thermostat lightly. A new thermostat cured the trouble and a potential service bill was cut in half. Remember that in addition to the attachment screws the thermostat also has electrical connections; do not forget to remove these.

Sometimes you may wish to check a thermostat, switch or similar device suspected of failing to open or to close. Photograph 8 shows the Model 70's ohmmeter section being used to check the continuity of a switch. When the switch is closed the ohmmeter should read zero ohms, indicating a good path with no resistance. With the switch open the ohmmeter should read infinite ohms indicating that the path is broken and therefore the resistance is too high to be measured. A reading of zero ohms all of the time indicates a shorted switch which means that the appliance could not be switched off. A reading of infinite ohms all of the time indicates an open switch which would prevent the appliance from being turned on. This same principle applies to other simple ohmmeter checks. If a switch checks bad, replace it. Few switches are worth the bother of repairing them except in an emergency.

In cooling the inside of a refrigerator heat is really being transferred to the outside of the cabinet where it is dissipated into the air in the room. Placing the back of the refrigerator too close to a wall hinders this process and costs you more money. This is a practice which most



PHOTOGRAPH 8—Continuity check of a switch with the Model 70.

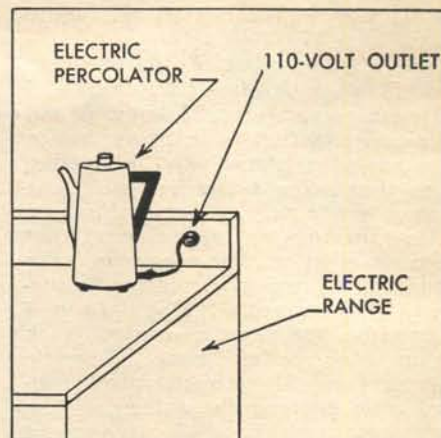


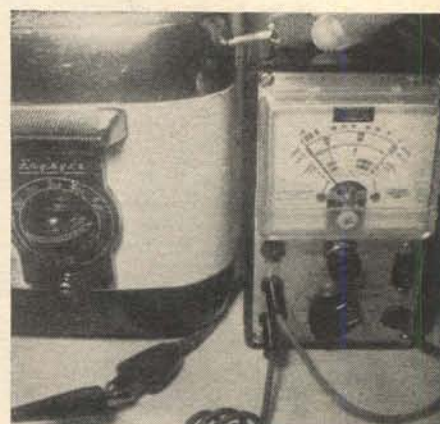
FIGURE B—Should the percolator develop electrical leakage you could receive a shock by touching it and the range (which is grounded) at the same time.

of the women indulge in—unfortunately. Your instruction manual or your dealer can recommend the distance considered to be a minimum for your refrigerator. One more "touchy" hint before we leave refrigerators — you'd be surprised at how much frequent defrosting contributes to the efficiency of the refrigerator!

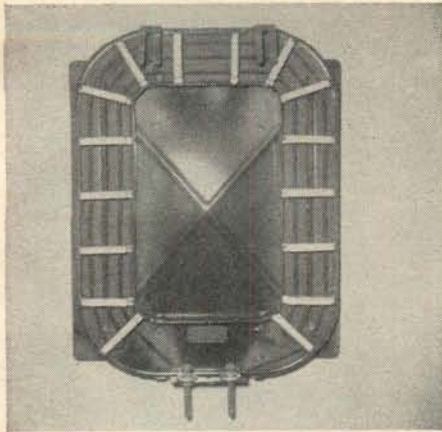
Ranges

BECAUSE IT requires electrical power in large amounts the electric range is connected by a special three-prong plug to a 220-volt source. The electric range is grounded, as are some of the other major appliances. This explains why Figure B shows a very poor practice. If the electric percolator became defective to the extent that its electrical circuit developed a leakage path to its metal body you could be shocked if you touched it and the stove at the same time. You should never touch an electrical appliance and a ground at the same time—unless of course you also like to play Russian roulette.

Photograph 9 shows the Model 540 being used to check a deep-fryer for electrical leakage. The tester is set for the leakage check, the fryer



PHOTOGRAPH 9—Using the Model 540 to check for electrical leakage in a deep-fryer.



PHOTOGRAPH 10—Broiler unit of an electric range with the heating coils exposed.

switch turned on and a check made from the prong of the disconnected plug to an unpainted portion of the fryer's metal frame. The owner had been using this on an electric range and complained that she received a shock. This test caused the neon bulb to glow, indicating a leakage path. Fryers are susceptible to this because of the grease and dirt accumulations. Unless the circuit itself is defective, a good cleaning, after disassembling the fryer, will remedy this situation.

Photograph 10 shows the construction of the broiler unit of an electric range. This section alone is rated at 2,200 watts. You may be assured that the wheels in the electric meter spin merrily around when heating units of this rating are used. A typical range will have a switch for three different conditions: 1. Broil, in which the top unit is energized. 2. Bake, in which the bottom unit is energized. 3. Preheat, which utilizes both units to bring the oven up to required temperature in a hurry. If one or the other of the units fails to operate, it will be evident from observation that it fails to heat up. Most units are fairly easy to remove. Some units simply unplug and slip right out while others may have retaining screws that must be re-

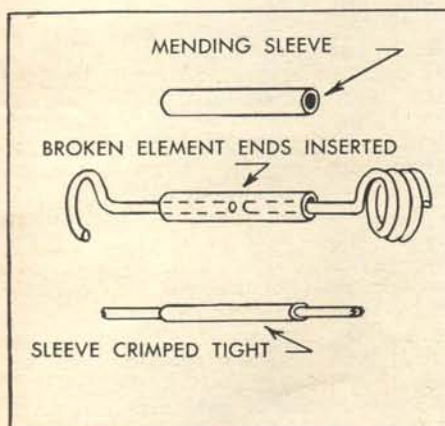


FIGURE C—Use of a mending sleeve to repair a broken element.



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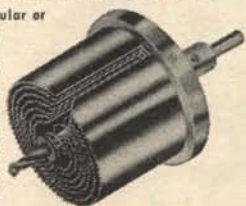
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moved first. A burned out spot in the heating element can be detected visually. A temporary repair can be made using a mending sleeve or small metal tube as shown in Figure C. Your best bet is to remove the old element and replace it with a new one. Make sure you buy the same length of element and that it will have the same wattage rating for that length as the old one. As you can see by the photograph, this remove-and-replace operation is not a difficult one.

Except for observation purposes make sure the range is unplugged when you are working with it. This is the only assurance you have of complete safety. It has been a long time since the top burner units of the electric range have been open coils. Indeed, some ranges may have no open coils at all—each heating unit including those in the oven being sealed. In this case you have no choice but to replace the whole unit. It should be kept in mind that a switch may be at fault as well as the element itself. Further trouble shooting of electric ranges is not difficult but requires the use of the individual wiring diagram for that range and the understanding of same. For that reason I have ruled it out of the scope of this article.

Washers

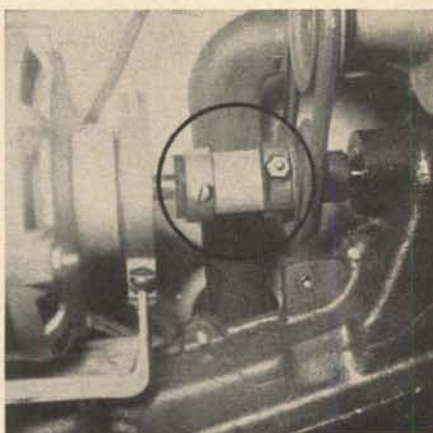
AUTOMATIC ELECTRIC washers can have rather complex circuits. Although many major appliances have a wiring diagram attached to them, usually at the back, some will still be so complicated that the average home craftsman will not wish to tackle them so this section will consist only of some general hints. Leveling of automatic washers is an important item. Where there is a heavy whirling, spinning part it will work better and last longer if the washer is kept level. Some automatics are more sensitive than others to off-center loads. Every effort should be made to distribute the clothes evenly for spinning on the top-loading types.

In nonautomatic washers a common complaint after a time is that the pump empties the tub very slowly. It sometimes happens that lint, pieces of cloth, and other foreign matter become lodged in the pump. A centrifugal washing machine pump is shown in Photograph 11. The pump may be cleaned by removing the side plate.

Used on some models is a rubber coupling which has sort of a shock absorbing effect—there is no metal to metal contact of shafts. One such coupling is shown in Photograph 12. One end of this coupling is attached to the motor shaft so that if the coupling breaks the motor will run but of course will drive nothing. I once made a "temporary" repair on a machine of this type by using a piece of garden hose. The "temporary" repair lasted several years!



PHOTOGRAPH 11—A common type of washing machine pump.



PHOTOGRAPH 12—Flexible coupling used to connect shafts on some models of washing machines.

There is a safety factor involved in the use of this coupling. On one washer the motor mount became loose and the motor fell out of position. Instead of doing extensive damage the total expense was about 35 cents for the coupling, which sheared, and a few minutes time to replace it.

Dryers

MANY ELECTRIC dryers are made so that they can be readily changed from 220-volt operation to 110-volt as the owner desires. This has no doubt sold many dryers to people who did not wish to undergo the expense of installing a 220-volt line. A dryer will do a given amount of work more economically, and in less time, on 220 volts than on 110 volts.

Washers and dryers have one thing in common—they must be kept clean for efficient operation. I know one woman who considered buying a new washer because "... the water won't run out ..." when the only difficulty was that she practically never cleaned the trap.

Dryers have a lint trap that must be cleaned. Vent lines should be checked to make sure that lint does not accumulate in them. Lint accumu-



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ulation cuts down the air circulation and therefore on the dryer's efficiency. Lint is even more dangerous than that, however. Consider the plight of one unhappy woman who had a dryer installed in her new house by an absent-minded contractor. It seems he forgot to tell her about cleaning the lint trap. In fact he didn't remove the shipping screws which means she probably couldn't have cleaned it even if she had known about it. She just used it until one fine day the lint caught fire and the dryer burned up.

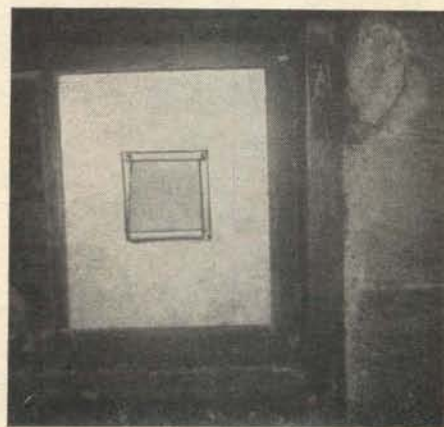
Some people operate dryers without a vent. This is generally considered to be a poorer way of handling the situation. The moisture from the clothes has to go somewhere and in an unvented dryer it goes right into the room. In a basement this is bad enough but if the dryer is installed in another room of the house—well it ain't good!

There are many kinds of venting kits on the market that make this chore relatively easy. Both metal ducts and flexible plastic tubing are available. If you wish to avoid cutting through a wall you may wish to situate the dryer so that a window can be used. In Photograph 13 the vent hood was fastened through a piece of sheet metal and the whole assembly installed in place of a pane of glass. You can even do better than that if you wish as Vent-Rite now makes a "Fibre Flex" window kit with a transparent piece to replace the pane of glass. Be sure to install the hood high enough, if in a basement window, that snow does not block it in the wintertime.

Summary

WE HAVE covered here some hints and highlights on refrigerators, ranges, washers, and dryers. There are many more things that could be said about these appliances but I feel that in the realm of major appliances the home craftsman is perhaps destined to be more of a stranger.

Some people work on appliances because of their interest, some in



PHOTOGRAPH 13—Window installation of a vent hood for a dryer venting system.

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3"	29 1/2" — 30"	1.18	1.28	1.40
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order to save money, and some for both reasons. The purpose of this series has been to give the home mechanic the fundamentals of the various appliances to better enable him to do this work. I have tried to take the mystery out of electro-mechanics because I believe that far more people could be enjoying the advantage of appliance knowledge if they would adhere to certain logical principles.

Logic, of course, is not understood by everyone to be the same thing. An example of this is the argument between two women about which appliance uses the most electricity. One said, "It's only logical that a refrigerator uses more electricity than an electric percolator—look how much bigger it is!" If the concept of wattage fails to win an argument of this type for you there is still one hope. The refrigerator shown in previous photographs uses about 1 1/2 amps according to the utility tester. Size to the contrary, when the element is energized in the percolator it draws about 4 1/2 amps—three times as much! Photograph 14 shows the Model 70 being used to check the current flow in an electric percolator while in operation.

I would say that the following are among the cardinal principles of ap-



PHOTOGRAPH 14—The Model 70 being used to check current flow in an electric percolator while in operation.

pliance repair: 1. Become familiar enough with your household appliances to know how they operate normally. 2. Disassemble in an orderly fashion. 3. Mark units and/or make diagrams if any confusion could exist upon reassembly. 4. Make a wiring diagram of the electrical circuit before appliance is completely disassembled. 5. Store all small parts in a container to avoid loss. 6. Avoid testing a "live" appliance where possible—this refers to an appliance which has been disassembled far enough to expose bare electrical connections. 7. Choose a work area with a well insulated floor and where you are not in danger of grounding yourself by touching a radiator, water pipe, etc. 8. Do not attempt repairs when it is obvious that a special tool will be needed to do the job, you may cause unnecessary damage. 9. Invest in a utility tester of your choice and study the instruction manual carefully, brainwork odds are much better than guesswork odds. 10. One thing more—resign from the "Brute Force Club." If a part sticks during disassembly or assembly, there must be a reason, find it.

I have always maintained that the home mechanic who could keep appliances in repair would be able to divert his funds to more worthwhile causes like hunting, fishing, workshop equipment, etc. If for all of your cleverness you still fail to impress the little woman, maybe Thomas Fuller has the advice you need:

A woman, a dog, and a walnut-tree,

The more you beat 'em the better they be.

Well anyway it's a thought—but not as practical as that listed in Part I of this series way back in May-June 1957: "Our purpose here is to present . . . general appliance repair information. Apply the general facts to your appliance and become your own expert."—and that is exactly what I hope you will do.

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By placing a 1/8-inch-thick pane of clear Plexiglas in the intervening space between the top of the air conditioner and the top mullion of the window you can reclaim up to two square feet of window area that would otherwise be lost with usual

metal or fiber panels. The result is a more pleasant room because maximum passage of daylight is assured.

The Plexiglas panel is shatterproof and completely transparent, resists weather well and won't yellow with age. After mounting holes are drilled, the panel is installed simply by screwing it directly to the window sash with wood or metal screws. In case the sash is worn or bent, calking material applied around the edges of the panel may be helpful in producing an airtight seal. The plastic should be cut slightly undersize and the mounting holes drilled slightly oversize to enable the panel to accommodate freely to thermal expansion and contraction as the temperature changes during the day. You can wash the Plexiglas easily with a soft cloth and plain soap and water. Don't use abrasive cleaners or scouring powders.

THE END

A PANEL OF PLEXIGLAS installed above the casement air conditioner in this house makes for a brighter, more cheerful room than if an opaque panel had been used. This panel was installed when the conditioning unit was put in but such panels can also be inserted at a later date to replace opaque panels in existing installations.



Renewing Window Seat or Stool

WALTER E. BURTON

A window seat or stool that has become unsightly because of water, wear, and repeated paintings can be given new life by covering it with a sheet of wallboard having a surface that harmonizes with surroundings. Among the materials that have been used is plastic surfaced hardboard, which is available in various colors and in realistic wood-grain and marble designs. The photograph shows a window seat renewed by installing a sheet of Marlite woodpanel having a birch grain pattern.

For a relatively large area like a window seat, the panel material can simply be cut to fit and laid in place without fastening. For a window stool only a few inches wide, it usually is desirable to fasten the covering material with nonrusting wood screws through drilled holes, or to remove the paint from the wood and use a suitable adhesive such as a type available from the panel manufacturer. Exposed edges of the paneling material are smoothed, and can be slightly rounded or chamfered with fine sandpaper.

THE END



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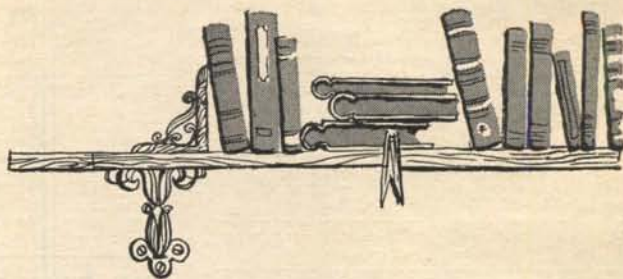
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Reviews By Theodore M. O'Leary



How to Make Your Own Picture Frames
by Ed Reinhardt and Hal Rogers
125 pages; illustrated;
Watson-Guption Publications,
New York City; \$7.50.

EVERYONE WHO has pictures on his wall, and that includes just about all of us, has at some time or another run up against the problem of frames for those pictures. In many smaller communities good frames just aren't available and in bigger places where you can get frames, they usually are extremely expensive. Ed Reinhardt and Hal Rogers, the authors of this book, suggest that there is a simple solution to this problem—make your own frames.

They concede that if you talk to any amateur who has tried to build a frame, he will probably tell you about all the pitfalls and frustrations he encountered in his efforts. But this need not be so, the authors assert, adding: "This book will provide you with a thorough knowledge of how to make and finish your own picture frames simply and at a moderate cost from materials which are readily available." This is certainly a laudable objective and Mr. Reinhardt and Mr. Rogers, have in fact, achieved just what they set out to do, for it is doubtful if there is another book available which will tell you so much about picture framing and will be so well organized. As the authors say, their book is meant to go on a workbench, not a bookshelf and has been so arranged that you can stand it up like an easel and follow the step-by-step instructions by simply flipping the page.

One useful feature of this book is that the authors call for the use of ordinary builders' molding, rather than picture frame moldings, as the basic material for the various frames for which they give building instructions. Builders' molding is much easier to obtain than picture frame molding, they point out, and comes in an amazingly wide variety of profiles and sizes. A great many of these moldings can be used "as is," while still more work well when combined with others. In this book the authors tell and show you just how to make more than fifty frame variations and all were designed using only eight builders' molding profiles.

Choosing the right molding is, of course, tremendously important and the authors give you specific advice

on this matter, emphasizing that different sorts of pictures require different sorts of frames. For instance, a bold picture demands a frame with strong, simple lines and a picture whose paint quality has a distinctly textural feeling is complemented by a frame rich in texture.

ROUGHLY SPEAKING, this book is divided into two parts—the first deals with the actual construction of the frames, the second deals with finishing them, and here the authors have included such matters as mixing patinas, texturing, toning and gilding. They also tell you in great detail how to mount prints, cut mats, cover mats and inserts and how to cut glass. There is also a section on the modification of antique frames (the kind you are likely to find in attics, cellars and secondhand stores) into frames suitable for even the most modern of contemporary paintings. Assembling and wiring, the final steps before your framed picture goes on the wall are simple, but it is important that they be done right, and the authors tell you how.

The final pages of "How to Make Your Own Picture Frames," show examples of eleven pictures, each framed differently, and making use of texture, materials and molding silhouettes in such a way as to enable the frame to carry out best the feeling expressed in the painting it surrounds.

Adding greatly to the value of their book is the fact that both Mr. Reinhardt and Mr. Rogers are highly accomplished professional artists, as well as skilled frame builders, and so they are able to bring to their volume an informed awareness of the relationship of a picture to its frame.

A Workshop of Your Own
by Martha Lincoln and Katharine Torrey
148 pages; illustrated; Houghton Mifflin Co.,
Boston, Massachusetts; \$2.50.

THIS LITTLE volume provides an excellent means of introducing the young child to the satisfactions of wood-working. It is written so that it can be easily read and understood by children of the fourth grade age level, but with help from a parent, children as young as 4 can derive value from it.

The book is built around the use of these ten tools: try square, C-clamp, crosscut saw, vise, coping saw, plane, half-round wood file, hack saw, hand drill and hammer. The authors describe the function of each of these tools and present the basic techniques involved in their use. They then present a series of simple projects. By the time the child has finished them he will have become familiar with the use of each of the ten tools. The projects require a minimum of materials and, in fact, most of the wood needed can be picked up from the scrap pile or purchased inexpensively. Some of the projects involve the use of such easily obtained things as spools, clothespins, string, paper clips, dowels, toothpicks, wooden beads, round checkers, etc.

The child is told how to plan a project, how to make and use patterns, how to select and prepare a place to work, how to keep his tools in order and how to paint and to care for paintbrushes. He is familiarized with the nature of wood and the use of sandpaper.

The projects include several chunky animals (a chunky is an animal made out of blocks and straight pieces of wood), a fish mobile, an animal yard with gate and turnstile, a set of tugboats and barges, a crane, three goats, several human figures made from blocks of wood and spools and an owl and a pussy cat in the construction of which the child is called upon to use every one of the ten basic tools.

While many parents feel perfectly capable of teaching their children the rudiments of working with wood, they may not always have time to do so. That's where this book comes in. There is also merit in letting a child learn from a book, for all of his life he will be turning to books for help in acquiring skills and information and it is of advantage to him to discover early how books can help him and how they are used as means of instruction.

Complete Amateur Boat Building
by Michael Verney
309 pages; illustrated; The Macmillan Co.,
New York City; \$3.95.

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by suitable natural bodies of water, has become one of the most popular of sports with the great increase in the number of artificial lakes which have been and are being built in the United States. The development of trailers on which even cabin boats can be towed behind the family car has also contributed to the boating boom. Of course, there exists the problem of meeting the cost of buying a boat, since good ones are relatively expensive. One way to solve that is to build your own, a project in which you will be aided by a study of this book by Michael Verney, British boating construction expert.

Mr. Verney strongly urges the beginning boat builder not to try to prepare his own design. He suggests that you either purchase designs or perhaps have them prepared specially for you by an expert. A designer will also be able to give you a reasonably close estimate of what it will cost you to build the boat you choose. Kits or parts are available for many boats of standard designs but if you start from scratch, assembling your own materials, the cost will be about two-thirds of the cost of a kit. Speaking in approximate terms, Mr. Verney says that providing your own labor, you can build a boat for from one-third to one-half the price of what it would cost you to buy a boat already built.

In "Complete Amateur Boat Building" Mr. Verney not only explains in detail the traditional methods of building boats, using wood, but he also devotes considerable space to building boats of glass fiber, reinforced plastics, steel and aluminum alloys. However, he offers the opinion that for amateur work, wood is likely to remain the cheapest and handiest medium for boat construction, particularly with the advent of reliable grades of waterproof plywood.

With the help of this single volume the amateur craftsman will be able to build a wide variety of boats, including catamarans, cabin cruisers, racing dinghies, speed boats, punts, ocean racers, launches, fishing craft and rowing boats, ranging in size from 6 to 60 feet. As well as offering full details on all the systems of hull construction, Mr. Verney includes chapters dealing with masts, marine engineering, electrical installations and finishing work. There are 116 drawings and 35 photographs.

The appendix includes a number of useful tables including one on the properties and uses of various species of timber for boat building and others on sizes of nails and screws used in marine construction. Mr. Verney's information on sources of supplies will not be of much value to American builders since suppliers listed are all British. However, the basic construction principles laid down by Mr. Verney are as applicable to boats for American waters as for any others.

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How to Enlarge Squared Patterns and Designs

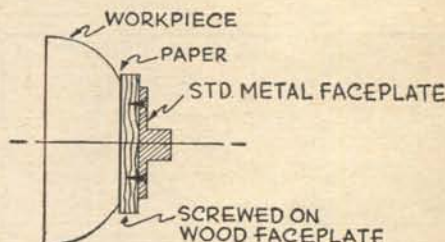
Number the outside squares of the pattern both horizontally and vertically. Now, using a piece of paper (preferably tracing paper) sufficiently large for the full-sized pattern, measure off the exact area you wish the pattern to occupy. Divide this area into the same number of squares as appears in the smaller pattern. Number the outside squares on the paper in the same manner as you have numbered the original pattern.

Copy carefully into each of the large squares the portion of the design that appears in each correspondingly numbered square of the original pattern.

This Might Help

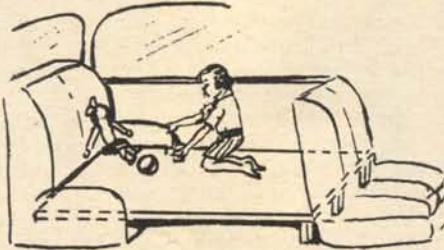
Avoiding Screw Holes On Wood Turning

When a piece has to be turned on a faceplate and the use of screws is not wanted as the screw holes would show afterwards, glue a piece of newspaper to wood faceplate then glue workpiece onto paper. When work is done, carefully insert putty knife blade between workpiece and faceplate and workpiece will come off easily. Remaining bits of paper on workpiece can be easily sanded off.—J. C. Roby



Comfort for Little Travelers

We have found an answer to the problem of weary children when



traveling by motor car. We make a platform of plywood cut to fit snugly over the back seat and extending to the back of the front seat. Where the platform adjoins the back of the front seat attach three short legs of two-by-fours that measure the height from the floor to top of the back seat, one leg at each end and one in the middle. Cover this platform with a cover, scatter a few toys they enjoy and the children can enjoy the ride along with their parents and nap times are not disturbed.

R. E. Blackwell

Shellac Stops Plywood Chipping

Anyone who has ever attempted to saw designs from plywood has been confronted with the problem of the stock chipping at the edges. If you coat the piece of plywood with a heavy coat of white shellac before attempting the design cutting, you will greatly reduce the possibility of chipping and splintering at the edges of the cut.—M. Robert Beasley

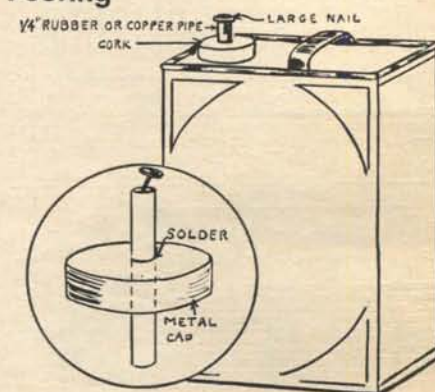
Sanding Small Objects

I have found that it is oftentimes easier to sand small workshop items if a sheet of sandpaper is first tacked to the workbench and then the small piece rubbed on this rather than trying to hold the work and sanding with a bit of loose sandpaper. There is much less chance of ruining the work when sanding in this manner.

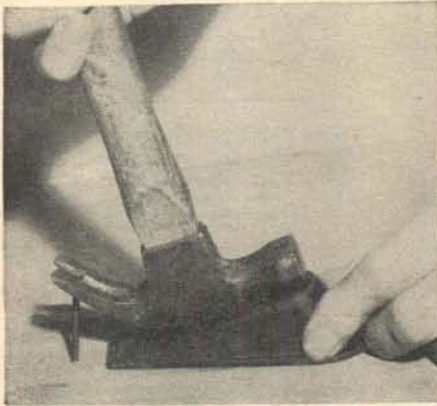
Howard E. Moody

For Easier Pouring

Ever try pouring turpentine, linseed oil, or other liquids that come in cans with small screw-on lids? There's always a certain amount that spills out where you don't want it to. To control this, simply drill a 1/4-inch hole through a cork that is the size of the opening, slip a 1/4-inch copper or rubber tube through it, and fit it snugly over the opening. Or drill a 1/4-inch hole through the cap and solder a 1/4-inch copper tube through it. To prevent drying, just put a large nail over the tube when not in use.—Arthur S. Green



This Might Help



Rubber Wedge Protects Wood

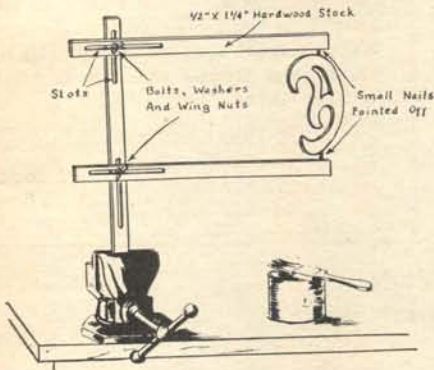
A rubber door wedge comes in handy as a nail puller. With it, it is possible to pull heavy nails without causing mars in the wood.

William Swallow

Stop Fraying Power Cords

From normal flexing during use, cords of shop electrical appliances have a habit of breaking down at the point where they enter the appliance, destroying the insulation, then the wires. You can lengthen the lives of the cords by wrapping them at the point of entrance with a few turns of the thin wire solder used by radio repairmen. The spirals of solder lend considerable additional support.

Stan Clark



Aid For Small Parts Painting

A device which will be useful when it comes to holding small parts for painting is easily assembled from scrap lumber. As shown in the drawing, the framework is made from $\frac{1}{2}$ " x $1\frac{1}{4}$ " hardwood stock, slotted as shown to make it adjustable. Bolts, washers and wing nuts are used to lock the pieces together. Pins with which the object to be painted is held are made by driving a small nail in each of the horizontal pieces, cutting off the head and filing to a sharp point.—*Victor H. Lamoy*

To Stop Squeaks in Flooring

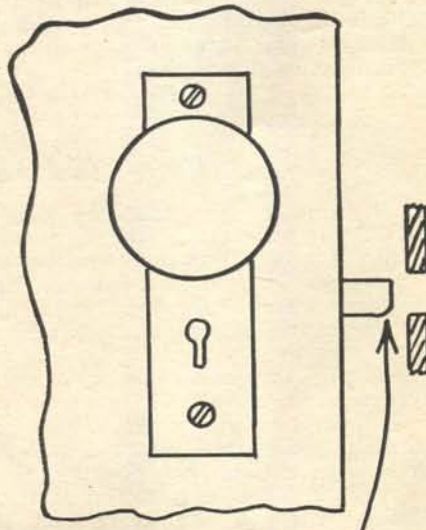
Squeaky floors can be very irritating to the homeowner. But in most cases, the homeowner can silence the squeaks himself. Usually floor squeaks occur when the subflooring loosens and pulls away from the joists beneath or when the finish flooring pulls away from the subflooring. Often the noise can be eliminated by simply holding a padded wood block over the point where the floor squeaks and pounding it hard with a hammer. This should drive the loose boards back into place. If this fails, then try driving three-inch finishing nails at an angle through both layers of flooring into the joists. Really stubborn boards can be pulled down tight with wood screws. If the offending floor is on the ground level of the house, you may be able to work on it from below. When a board has pulled up from the joist, drive a thin wood wedge into the gap but be careful not to drive it so hard that the board is raised still farther. Another remedy that can be used from the basement side is to nail a heavy strip of wood along the upper edge of the joist tight against the raised board.

Eva Willis

Freeing Door Lock Plunger

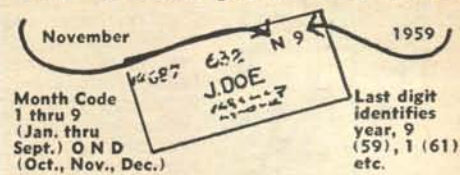
If you cannot turn the key to lock your door, open the door to see if turning the key moves the plunger freely. If it does, the trouble is that the door sags so the plunger can't enter the strike plate on the door jamb. Round off the lower edge of the plunger end as shown.

Frank Harazin



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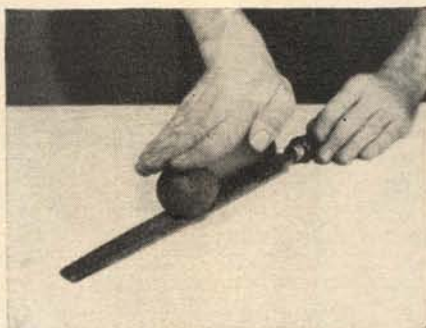
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This Might Help Putty Cleans File's Teeth



When the teeth of a file become clogged, the file loses its bite and just slides over the work surface instead of biting in. While there are many ways to clean a file, probably the easiest, most convenient and thorough is to use a ball of putty or modeling clay. By rolling the ball up and down the file with the palm of the hand, as shown, the putty or clay gets down deep in the flutes and lifts out the filings that are out of reach of a wire brush or file card. And after being once used, the ball need not be discarded. If it is kneaded with the fingers after use, filings on the surface of the ball will work themselves right into the material out of the way. And thus the ball may be used many times over. If the ball starts to dry out, just apply a few drops of linseed oil to renew its stickiness. Also, keep the ball stored in a tightly closed glass jar when it's not in use.

John A. Comstock

To Cut Down Paint Splatters

I find that gluing an ordinary paper plate to the bottom of a paint can is handier and saves me more work than spreading newspapers over the floor to catch the drips from the can. Besides catching all the drips it also prevents small cans from being tipped over.

Blanche Campbell

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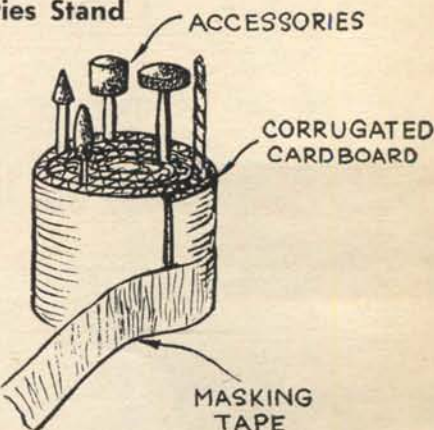
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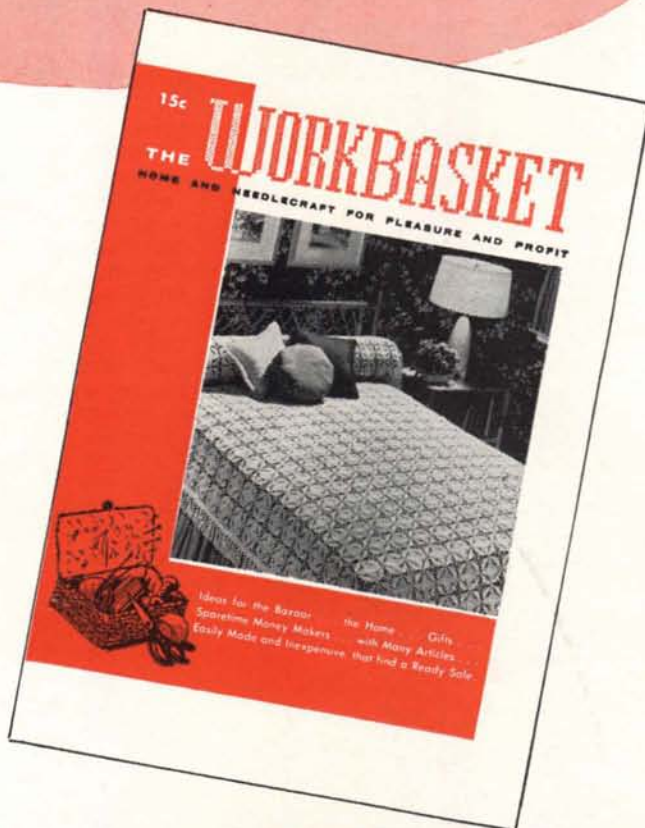
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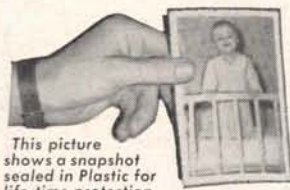
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